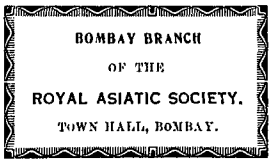
Report on the Operation of the
Electric Telegraph in Ind
1855-56 to 1860-61

00134613

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# REPORT

ON THE

# OPERATIONS OF THE ELECTRIC TELEGRAPH

# IN INDIA,

134618

FOR THE

LAST QUARTER OF THE YEAR 1855-56.

00134613

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# REPORT

ON THE

# OPERATIONS OF THE ELECTRIC TELEGRAPH IN INDIA,

FOR THE

## LAST QUARTER OF THE YEAR 1855-56.

THE printed Report, on the operations of the Telegraph in India, from 1st February 1855, the date on which the Lines were opened to the public, to 31st January 1856, contains detailed information on every point of interest connected with the working of the Offices, and the condition of the Lines generally, during the first nine months of the official year 1855-56. To avoid unnecessary repetitions, the present Report is accompanied by a general Statement, showing, collectively, the general operations of the Telegraph, for the whole official year; but no lengthened Report, on the condition of the Lines and Offices, at a time so immediately succeeding the submission of the Report above referred to, seems necessary.

2. The Cash Receipts, for messages transmitted, during the last quarter of the official year, show a continued, and decided improvement, in the financial condition of the Telegraph, up to that period of the year, when the amount of business transacted in Indian Mercantile Houses seems, from the experience of this, and of the preceding hot season, to decrease very perceptibly for the space of two or three months, and to have the result of causing a temporary diminution in the Cash Receipts of the Lines.

3. A Tabular Statement is appended, showing the total number of complaints, monthly, throughout the year. The number of complaints, even during those months (January and February), which exhibit the largest lists, is undoubtedly very small, when compared with the total number of paid messages transmitted. Thus the number of complaints to total number of paid messages is—

| | | |
|---|---|---|
| In January | 1·28 | per Cent. |
| In February | 1·55 | „ „ |
| In March | 0·85 | „ „ |
| In April | 0·83 | „ „ |

and though, it is certainly not to be supposed, that complaints are forwarded, in *every* instance of error or delay, the above results seem most satisfactory and creditable to the working of the system, and afford strong grounds for concluding, that a very high standard of accuracy, in the general transmission of messages, has been attained.

### BENGAL.

4. In Bengal, considerable changes took place in the distribution of the Officers; Mr. Muller being appointed Deputy Superintendent at Agra, with the charge of the Lines

and Offices in the North-Western Provinces and Punjab, shortly after Dr. O'Shaughnessy's departure from India, and Mr. G. O'Donnell taking his place as Deputy Superintendent at Calcutta. A careful inspection of the Lines, between Calcutta and Benares, at this period, was followed by a Report, that the Line, as then supported, for a great part of the distance, on Palmyra-posts, was not in a condition to ensure regularity of communication, during the approaching rainy season. Many of these posts had entirely decayed, internally, and the outer shell had become brittle and insecure. In consequence of a representation of the above facts, the Government of India sanctioned the removal of the objectionable supports, and the substitution of posts of the best timber procurable in the district, at a cost of Rupees 18,854-14-7.

5. In consequence of the activity and intelligence shown by Inspector Seeb Chunder Nundy, and the excellent arrangements made by him for procuring strong posts of good Sal-timber, from the wooded tracts that extend from Khyrasole to the Dhunwa Pass, the greater part of this portion of the Line, (145 miles), will be supplied with new supports, at intervals of 264 feet, at a cost of from 12 annas to 1 Rupee, and 14 annas each, including all charges. A very considerable saving, on the estimated expenditure, may therefore be anticipated in this particular portion of the Line; but considerable difficulty has been experienced, in procuring good timber, at moderate rates, between the Dhunwa Pass and Sherghotty, and from the Soane to the Kurmnassa, though very praiseworthy efforts have been made by Inspector Curwen, under Mr. O'Donnell's superintendence, to execute the work rapidly and economically.

6. A further estimate of Rupees 10,497, for the renewal of the Southern or River Lines, was sanctioned. These Lines, particularly that portion on the right bank of the Hooghly, extending from Kedgeree towards Diamond Harbour, had been, for long, in a most precarious state, never having been thoroughly renewed since their first construction as experimental Lines by Dr. O'Shaughnessy, before the commencement of the extended Indian system.

7. The construction, also, of a new Cable, to be submerged in the River Hooghly, between the Ruthtolla and Sulkea Ghâts, opposite Calcutta, was sanctioned at a cost of Rupees 7,700, exclusive of Arsenal and Telegraphic Stores. By this measure, the not improbable contingency of great delay to communication, from any accidental injury to the existing Cable, is avoided, as the new Cable can be, at once, brought into the circuit, and used, when repairs to the other may be at any time found necessary. The new Cable consists of a leaded and gutta percha covered copper wire, surrounded by seven guards of No. 8 Galvanized Iron Wire, and again protected, and embraced, by contiguous rings of cast-iron, half an inch in thickness, extending along its whole length, and preventing the possibility of any movements, or play, in the inner wire-guards, the displacement of which has been the cause of injury to many previously constructed Cables.

8. The wire, and other materials, of the Berhampore Line of Telegraph, were removed, and again stored in Calcutta, when the Sontal Rebellion, which alone had rendered such a Line temporarily desirable, was quelled.

9. In the working of the Offices, the advantages anticipated by Dr. O'Shaughnessy, from Mr. P. C. Bailey's long experience and known zeal, were fully realized. A marked

improvement took place, and a higher degree of discipline was introduced, generally, among the Signallers.

## NORTH-WESTERN PROVINCES.

10. In the North-Western Provinces, no changes, worthy of notice, took place, during the last three months of the year. The Lines had been, already, placed in a condition, which, though not likely to prove perfectly permanent, rendered it unnecessary to execute any alterations, for a considerable period; the detailed Reports furnished by Mr. O'Donnell, and already published, contain minute particulars regarding every point of interest, and make it unnecessary to speak further on the subject.

## PUNJAB.

11. In the Punjab, the Lines generally stood in need of extensive, and in many parts of entire, renewal. The common timber, (cheel), that had been extensively used, particularly in the Ravee and Jullunder Doabs, as supports for the wire, on account of its cheapness, and from the greater facility that existed for procuring it, when the first construction of the Lines was emergently ordered, is of a description very ill suited for Telegraphic purposes, being porous and very liable to injury by white-ants, and to decay from moisture. It is not to be wondered at, therefore, that, on the occurrence of storms, it was often found necessary to re-place, or renew, at a very considerable expense, a large proportion of defective posts on these Lines, the entire renewal of which was delayed after all other Indian Lines had been placed in a more permanent form, on account of the scarcity, and high price of good timber, generally, throughout the Punjab, and the project, consequently formed by Dr. O'Shaughnessy, of substituting hollow cast-iron supports, for timber posts, on the Punjab Lines, as soon as the arrival of the necessary stores from England would admit of such measure.

12. At each of the Punjab Rivers, in which a submerged Telegraphic Cable has been adopted as the means of communication, small masonry "Junction Houses" have been constructed by the Officers of the Department of Public Works, at each extremity of the Cable, where connection is made with the Over-ground Line. In these Junction Houses, Lightning Conductors are placed, which protect the submerged Line from the injury that would inevitably be caused, were a current of very high intensity to pass along the insulated copper wire of the Cable.

## BOMBAY AND MADRAS.

13. The detailed Report on the Bombay Telegraph, supplied by Lieutenant Chauncy and included in the general Report already published, contains minute descriptions of the Lines and Offices in that Presidency, and renders any further notice unnecessary. A general Report, of the operations of the Telegraph, in the Madras Presidency, has been

drawn up by the Officiating Deputy Superintendent, Mr. Brooking. With reference to these Reports, it is only necessary, at present, to mention, that the preliminary arrangements made by Mr. Brooking, during the close of the year 1855-56, for the commencement of the Line from Mysore to Calicut and along the Western Coast to Cananore, have been proved, by the result of subsequent operations, to have been very efficient and well-judged.

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The officiating Superintendent does not doubt, that had Lieutenant Chauncy been spared to report on the operations of the Telegraph, during the period to which the foregoing remarks refer, he would have spoken most favorably of the zeal and energy shown by the different Deputy Superintendents, and of the manner in which the duties of the Department generally were discharged—duties which, from the continually increasing amount of work to be executed, had become extremely arduous, and must have told severely on many of the Assistants and Signallers employed in the more important Offices, and yet were, as a general rule, cheerfully and efficiently gone through.

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## PEGU.

In Pegu, the actual working of the only Line that has been, up to the present time, completed, namely, that from Rangoon to the frontier fortress of Meeaday, was not commenced till the month of February 1856. The expenses of the two remaining months of the official year, and the receipts of the Line and amount of business transacted during that short period, do not afford sufficient data to admit of a general Report on the working of the Line ; but a Statement showing the actual receipts, and the cost of keeping up the Signalling Offices, and paying Working Establishment, during those months, is annexed, together with a Statement showing the total cost of the completed Line, in which the "Construction" Account is debited with the amount of all working charges, such as the pay of Signallers, &c., previous to the opening to the public of the whole Line, and credited with the trifling receipts actually realized from the transmission of paid messages along such parts of the Line as were worked for a short time previously to the completion of the whole extent.

The expenditure, by the Officers employed on the "Construction," under the orders of Major DuVernet, that is, in surveying and tracing the Lines, clearing the jungle, procuring and erecting the posts, is shown separately from that incurred by the parties who, under the superintendence of Mr. Wickham, suspended, strained, and connected the wires, and laid down the submerged Cables, &c. Under the latter heading is included the cost of all the Telegraphic Stores expended on the Line.

From the Statement above referred to, it will be seen, that the total cost, to the State, of the Rangoon and Meeaday Line, per mile, is somewhat less than that of the Lines in the Madras and Bombay Presidencies,—which latter have, however, been placed in a much more permanent condition, and were more rapidly completed than the former,—but that it is in excess of the average cost of Lines in Bengal and the North-Western Provinces.

| | |
|---|---|
| Madras about .. | 500 |
| Bombay about.. | 514 |
| Pegu.. .. .. | 462 |

But it is to be observed that, in Pegu, the great abundance of excellent timber, for supports, which, under other circumstances, would have ensured the completion of a Line of Telegraphs at a very small cost, was far more than counterbalanced by the very great difficulty experienced in obtaining labor, even when the exorbitantly high rates demanded were complied with,—by the difficulty of transporting and distributing stores along a Line that, unlike those in India, is carried along a tract cleared for the purpose, with great difficulty and expense, through dense jungles and swampy ground, covered with elephant grass,—by the total absence of any assistance from a previously organized Establishment, distributed, as on the Trunk Road of India, along the entire length of the route taken by the Telegraph Lines,—and by the utter impossibility of carrying on any field operations during the very large proportion of the year, when the country to be traversed is, in many parts, entirely submerged, and reduced to an extensive swamp, that can be passed over only in canoes.

These causes, together with the lamentable occurrence, in April 1855, of the murder of one of the Officers employed on the work, have combined much to delay the completion, and to increase the cost of the Telegraph Lines in Pegu. Offices have been opened at Rangoon and Meeaday, with intermediate Stations at Henzada, Menghee, and Prome.

The construction of the new Line, from Rangoon towards Tounghoo, which was commenced on the completion of the former, is in progress. A Statement, showing the expenditure on the work up to the close of the official year, is annexed.

These and other Reports, on the general nature of the country through which the Pegu Lines pass, give reason for anticipating, that the annual expense of working the Lines will be greater in proportion than in India generally. It may, probably, be found necessary to go to a considerable expense, annually, in cutting down, and clearing away, jungle and elephant grass, from the vicinity of the wire. The latter, in particular, has been found productive of very great annoyance. The wonderful rapidity of its growth is such, that, in a single season, after being cut level with the ground, it has attained a height that brings it in contact with the Telegraph wire. When this occurs, it becomes almost impossible to keep up communication, even for short distances, during wet or foggy weather, as every point, where the wire comes in contact with the surface of a blade of grass saturated with moisture, affords an additional means of escape for the electric current and causes diminution in its power.

Nor is this the only difficulty, for the duty of patrolling the Line becomes extremely arduous, and the timber supports are liable to destruction by fires spreading over the grass-covered districts.

Under these circumstances, it is hardly to be expected, that even, if a very great increase on the amount of work transacted were to take place, the Telegraph, in Pegu, can be, in any way, self-supporting, though its value to Government may probably prove very great.

It was not till the 8th of May 1856, or after the close of the official year to which this Report refers, that the supervision of the Pegu Lines was transferred to the Superintendent of Telegraphs in India; but some notice of these Lines, concerning which but little data were available when Dr. O'Shaughnessy's Report was written, was necesary.

*ABSTRACT STATEMENT showing the Total Cash Receipts and Proforma Charges of each Month on account of Paid and Service Messages, transmitted by Electric Telegraph, during the Year* 1855-56. *Also the Total Number of Messages sent by Natives.*

| Month. | Total number of Service Messages. | Total number of Paid Messages. | Total number of Paid and Service Messages of each month. | Total number of Messages sent by Natives. | Total of Paid Messages. | Total of Service Messages. | Total of Paid and Service Messages of each month. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| May 1855 .. .. .. .. | 1455 | 186 | 1641 | 1432 | 8635 4 0 | 3603 8 0 | 12238 12 0 | |
| June 1855 .. .. .. .. | 1591 | 185 | 1776 | | 10181 14 0 | 4031 12 0 | 14213 10 0 | |
| July 1855 .. .. .. .. | 1733 | 336 | 2069 | | 10823 6 0 | 4045 4 0 | 14868 10 0 | |
| Total of each quarter .. | 4779 | 707 | 5486 | 1432 | 29640 8 0 | 11680 8 0 | 41321 0 0 | |
| August 1855 .. .. .. | 2025 | 314 | 2339 | 812 | 11408 14 0 | 4001 0 0 | 15409 14 0 | |
| September 1855 .. .. .. | 2468 | 243 | 2711 | 1090 | 14316 0 0 | 2717 4 0 | 17033 4 0 | |
| October 1855 .. .. .. | 3079 | 375 | 3454 | 1063 | 16073 6 0 | 4448 0 0 | 20521 6 0 | |
| Total of each quarter .. | 7572 | 932 | 8504 | 2965 | 41798 4 0 | 11166 4 0 | 52964 8 0 | |
| November 1855 .. .. .. | 2848 | 451 | 3299 | 965 | 14612 12 0 | 3937 10 0 | 18550 6 0 | |
| December 1855 .. .. .. | 3449 | 528 | 3977 | 1283 | 17590 6 0 | 4334 13 0 | 21925 3 0 | |
| January 1856 .. .. .. | 3590 | 838 | 4428 | 1192 | 17652 12 0 | 6545 3 0 | 24197 15 0 | |
| Total of each quarter .. | 9887 | 1817 | 11704 | 3440 | 49855 14 0 | 14817 10 0 | 64673 6 0 | |
| February 1856 .. .. .. | 3751 | 878 | 4629 | 1272 | 18067 6 9 | 6035 3 0 | 24102 9 9 | |
| March 1856 .. .. .. .. | 3971 | 949 | 4920 | 1298 | 18318 0 9 | 6199 6 0 | 24517 6 9 | |
| April 1856 .. .. .. .. | 3958 | 749 | 4707 | 1383 | 17188 10 6 | 3632 7 0 | 20821 1 6 | |
| Total of each quarter .. | 11680 | 2576 | 14256 | 3953 | 53574 2 0 | 15867 0 0 | 69441 2 0 | |
| Grand Total ..... | 33918 | 6032 | 39950 | 11790 | 174868 12 0 | 53531 6 0 | 228400 2 0 | |

P. STEWART, *Lieut., Engineers,*
*Officiating Superintendent, Electric Telegraphs in India.*

Calcutta;
*Electric Telegraph Superintendent's Office,*
*The* 31*st October* 1856.

*TABLE showing the Relative Number and Value of Complaints, from 1st May 1855 to 30th April 1856, inclusive, compared with the Number and Value of Messages.*

| Months. | Total Messages. | Total Complaints. | Total Value of Messages. | Total Value of Complaints. | Total Amount Refunded. | Cases of Refund. | Cases of No Refund. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| May 1855 ... ... | 1641 | 6 | 12238 12 0 | 157 8 0 | 77 8 0 | 5 | 1 | |
| June 1855 ... ... | 1776 | 36 | 14213 10 0 | 536 8 0 | 337 8 0 | 27 | 9 | |
| July 1855 ... ... | 2069 | 39 | 14868 10 0 | 557 8 0 | 557 8 0 | 39 | 0 | |
| August 1855 ... ... | 2339 | 12 | 15409 14 0 | 159 8 0 | 104 0 0 | 9 | 3 | |
| September 1855 ... ... | 2711 | 9 | 17033 4 0 | 133 0 0 | 133 0 0 | 9 | 0 | |
| October 1855 ... ... | 3454 | 23 | 20521 6 0 | 220 8 0 | 201 12 0 | 21 | 2 | |
| November 1855 ... ... | 3299 | 12 | 18550 6 0 | 94 8 0 | 73 8 0 | 10 | 2 | |
| December 1855 ... ... | 3977 | 25 | 21925 3 0 | 261 8 0 | 233 0 0 | 23 | 2 | |
| January 1856 ... ... | 4428 | 44 | 24197 15 0 | 447 0 0 | 303 0 0 | 35 | 9 | |
| February 1856 ... ... | 4629 | 58 | 24102 9 9 | 521 8 0 | 356 8 0 | 43 | 15 | |
| March 1856 ... ... | 4920 | 34 | 24517 6 9 | 337 4 0 | 286 0 0 | 28 | 6 | |
| April 1856 ... ... | 4707 | 33 | 20821 1 6 | 327 0 0 | 254 0 0 | 26 | 7 | |
| Total ... | 39950 | 331 | 228400 2 0 | 3753 4 0 | 2917 4 0 | 275 | 56 | |

Calcutta;
*Electric Telegraph Superintendent's Office,*
*The 31st October* 1856.

P. STEWART, *Lieut., Engineers,*
*Officiating Superintendent, Electric Telegraphs in India.*

*ABSTRACT showing the Total Cost of constructing the Line of Electric Telegraph in Pegu, between Rangoon and Meeaday, distance* 211 *Miles.*

| | Construction and Contingent Bills | Cost of Wire and other Stores issued and expended. | Totals. | Grand Total. |
|---|---|---|---|---|
| Expenses incurred by Major DuVernet, Superintendent for the Construction of the Electric Telegraph in Pegu, previous to 1st May 1855 ..... | ..... ... ... | ..... ... ... | 36,405 13 6 | |
| Ditto ditto ditto during the year 1855-56, up to date of completing Line ... .. ... ..... ..... ..... | ..... ... ... | ..... .. ... ... | 13,436 3 5 | 49,842 0 11 |
| Expenses incurred by the Deputy Superintendent, Electric Telegraph, in completing the Line of Electric Telegraph, between Rangoon and Meeaday, previous to 1st May 1855 ..... ..... ..... .. ... | 8,278 13 9 | 10,457 12 8 | 18,736 10 5 | |
| Ditto ditto ditto during the year 1855-56, | 14,900 9 5 | 12,610 15 5 | 27,511 8 10 | |
| Expense on account of Working Line, from October to date of opening Lines to the Public ..... ..... ..... ..... ..... | ..... ... ... | ..... .. .. | 1,522 11 1 | 47,770 14 4 |
| | | Company's Rupees | ..... ... .. | 97,612 15 3 |

At an average Cost of Rupees, 462-9-11·16 per mile.

P. STEWART, *Lieut., Engineers,*

*Officiating Superintendent, Electric Telegraphs in India.*

*EXPENDITURE on Construction of Line of Electric Telegraph, from Rangoon to Pegu and Tounghoo, during the year* 1855-56, *including cost of clearing jungle, procuring and erecting posts, &c., and Salaries of all Officers and Establishment employed.*

| | | |
|---|---|---|
| November 1855 ... ... ... ... ... ... ..... | 1,193 11 4 | |
| December 1855 ... ... ... ... ... ... ... | 1,115 0 0 | |
| January 1856 ... ... ... ... ... ... ..... | 3,135 6 8 | |
| February 1856 ... ... .. ... ... ... ... | 3,270 10 1 | |
| March 1856 ... ... ... .. ... ... ..... | 5,517 10 9 | |
| April 1856 ... ... ... ... ... ... ... | 4,965 10 9 | |
| | | 19,198 1 7 |
| Company's Rupees ..... | | 19,198 1 7 |

P. STEWART, *Lieut., Engineers,*

*Officiating Superintendent, Electric Telegraphs in India.*

CALCUTTA ;
*Superintendent's Office,*
*The 31st October* 1856.

*STATEMENT showing the actual Cash Receipts and Expenses incurred on account working of Electric Telegraph in Pegu, during the months of March and April* 1856.

| Cash Receipts. | Value paid of Messages. | Value of Service Messages. | Total. | Cost of Establishment and Contingencies. | | |
|---|---|---|---|---|---|---|
| In March ... ... ... ... | 40 8 0 | 446 8 0 | 487 0 0 | For March 1856, Establishment ... | 1,249 0 0 | |
| „ April ... ... ... ..... | 126 0 0 | * | | „ Contingencies ... | 37 2 0 | 1,286 2 0 |
| | | | | „ April „ Establishment ... | 1,014 0 0 | |
| | | | | Contingencies ... | 0 0 0 | 1,014 0 0 |
| Company's Rupees ... | 166 8 0 | | | Company's Rupees ... | | 2,300 2 0 |

* The amount of *pro formâ* Charges, for Service Messages, in April, cannot, at present, be given; the papers that supply the information having been returned to Rangoon for alteration. As soon as received, a Memorandum shall be sent, from which the Statement may be made complete.

E. E.

P. STEWART, *Lieut., Engineers,*

*Officiating Superintendent, Electric Telegraphs in India.*

CALCUTTA ;
*Superintendent's Office,*
*The 31st October* 1856.

# APPENDIX.

TO THE

# ANNUAL REPORT OF THE ELECTRIC TELEGRAPH

FOR THE

## OFFICIAL YEAR 1856-57.

## MADRAS.

THE direction of the Lines of Electric Telegraph in this Circle, the number of Offices, and a general description of every thing relating to the working of Telegraphs in Madras, were given in the Report furnished for the year ending 30th April 1856. This ground needs not be travelled over again; but for the sake of connection between the Reports of this and last year, a few words will be said re-calling the state of affairs at the end of the last official year.

The Line from Madras *viâ* Vellore, Bangalore, Bellary, and Humpasagur to Bombay was described as supported mostly by granite slabs or masonry pillars; but between Kistnagherry and Madras (150 miles,) it was said that the Line was in a wretched state, and that the props to the wire were either bamboos half-eaten by white-ants or soaking rotten palmyras. The Line was sometimes blown down for miles, and one instance was reported of 15 miles of wire being thrown to the ground at once. Messages were delayed. All this was very unsatisfactory.

This was not owing to any want of provision or foresight on the part of Mr. Brunton, the late Deputy Superintendent of the Madras Circle, but to the Contractors failing to do their work, and the dilatoriness of the Inspector in charge from Arcot to Madras.

### I.—LINES MADE PERMANENT.

The first step taken to mend matters was the opening a Telegraph Office at Vaniembaddy, and strengthening the Line by re-placing the bamboos and palmyras with teak and jungle-wood posts, to keep up communication during the heavy rains in May and June.

Afterwards, the Line for this 150 miles was made permanent. From Madras to Vellore, columns of brick and chunam have been constructed, and from thence to Kistnagherry are the granite pillars.

There are two gaps between Madras and Vellore—one of five miles, and another of two-and-a-half, which will not be permanent for another month, and it is believed that, on the other side of Vellore, a granite pillar is still wanting here and there.

Time has proved that the solid stone of granite is far preferable to the masonry pillar as a support to the wire; for on the Line between Toomcoor and Humpasagur, where

there are nothing but supports of the latter kind, the wire was sometimes broken from their falling; and at another time interruptions have occurred from the blocks of granite placed on their top rolling off, which allowed the wire to rest on the moist chunam. A wet communication was thus formed with the ground, by which the electricity escaped to the earth. What adds to the liability of accidents occurring with masonry pillars is the fact, that it is almost impossible to prevent the use of bad chunam by the Contractors; the brick-work in consequence never settles properly, and on the rain getting into the pillar, the bricks are loosened, and a moderate storm blows the whole mass down.

In the past year, the Telegraph from Bangalore to Ootacamund was strengthened. For 60 miles out of Bangalore, granite slabs were put up, but to the rest of the Line, which is on good teak timber posts, nothing has yet been done, further than keeping it in repair.

These were all the Lines working in April last year, besides those small Lines to the Offices of Poonamallee, Mount, and the Fort.

No Table has been drawn up, showing the number and duration of interruptions for this and last year, but the fact that, during the months of April, May, and June 1856, there was no communication between Bangalore and Madras repeatedly, sometimes for two days, shows how effective the improvement on this Section of the Line has been; for during the same months this year, only two interruptions, which lasted but a few hours, have taken place. This has been of the utmost benefit to the well-being of India, as from the Rebels cutting off all communication, both by Dawk and Telegraph, from Delhi, Agra, and the Punjaub to Calcutta, the Madras and Bombay Line has been the only means of Telegraphic Communication between the scenes of the present disturbances and the Capital of India.

Messages from the Punjaub and from Agra are received here a few hours after their delivery for despatch at either of these places, and they are sent on either by Express or by Steamer to Calcutta.

While on the subject of interruptions, it is well to describe one that occurred near Ootacamund on the 5th October, both because it was a peculiar phenomenon, and also because it gives a good idea of the exertions that at any moment may be required from those employed in this Department.

The account is given in the Appendix* in the words in which it was reported to the Superintendent of Telegraphs by the writer of this Report shortly after the accident.

## II.—The Western Coast Line.

Besides the work of making the old Lines in this Circle permanent, a new one of 203 miles has been added during the past year. The branch Line from Mysore to Calicut running *viâ* Mercara and Cannanore is referred to.

---

* Appendix A.

There were several reasons that made the erection of this Line a very arduous duty —

*First.*—The country through which it passes is very hilly, and from Frazerpett to Mercara, and from thence to Gunnote, is the most dense forest; the rest of the road being all low jungle. It would be needless to attempt a description of the largeness of this forest even to the many who have seen it; but those who have had to cut their way through miles of it, are the only persons who can form a just estimate of its thickness. The trees are immense and grow quite close to one another.

*Second.*—The second difficulty was not any natural obstacle, but arose from a change of arrangements as to who should erect the Line. This caused considerable delay. Prior to Mr. Brunton's leaving for Bombay in the end of February, it had been arranged that only the part in Malabar should be put up by this Department, but Colonel Green, the Chief Engineer of Mysore, had kindly undertaken to erect the wire through Astagram and Coorg. The removal of one of the Assistant Engineers from the Mysore Public Works Department prevented Colonel Green carrying out his intention as far as Coorg was concerned. This difficulty was easily overcome by the appointment of an Inspector and Artificer who had just been transferred from the Bombay to the Madras Telegraph Establishment, but the arrangement was no sooner made than his disgraceful conduct before he left Belgaum caused the remand of the Artificer to his Regiment, and the Inspector resigned to secure a better-paid appointment in the Mysore Public Works.

The fair weather slipped by while these changes were being made, and the difficulties presented by the natural obstacles of the country were increased fifty-fold, by necessitating the construction of the Line during one of the heaviest monsoons that had fallen for years. It was now about the end of May. The Inspector of this Department had nearly finished the Line in Malabar. The assistance of Colonel Green was again sought, and as Lieutenant Johnson, of the Mysore Public Works, was now the Executive Officer of Coorg and Astagram, he most kindly, though already over-burdened with work, promised every assistance. The Deputy Superintendent of this Circle accompanied Lieutenant Johnson on an Inspecting Tour through Astagram and Coorg at the end of May and the beginning of June. The monsoon had already set in, and the season was reported to be more wet than usual. On leaving Mercara, carts had to be abandoned, and the traps had to be carried by coolies, on account of the state of the roads; engineering work was at a stand still, and the advice of every one experienced in the climate of the Western Coast was to give up all hopes of putting up a Telegraph in such weather.

It was very evident, that Lieutenant Johnson, though willing to give every help, was so harassed with the number of his own works, that the hardship of putting up a Telegraph in a monsoon ought not be added to them. He had already given excellent assistance by clearing the jungle in different parts, and the Line had been marked out the whole way. As the completion of the Line through Malabar had freed a number of Telegraph Artificers, they were at once placed on this portion, and the Inspector appointed to superintend them was Mr. Darling. There being now sufficient hands belonging to the Telegraph for the work, the charge of it was given over by Lieutenant Johnson to the Department on the 1st of June, but it was about the 1st of July, before the requisite arrangements could be made to commence work in earnest.

On the 28th of September, communication was opened with Mercara, Cannanore, and Calicut. There is no space here to speak of the difficulties the work presented. They were almost insurmountable. The incessant rain, the despondence caused by the weather, by the want of coolies (who even for very high monthly pay could only stay a few days and then make off in the night,) by the fever and sickness, by the failing of two of the Telegraph Artificers whose names are not mentioned—these were hardships that had to be wrestled with and overcome. The Inspector, Mr. Darling, behaved most admirably, and his conduct was from first to last most praiseworthy. Everything is due to his untiring urging-on of the work. The Warley Artificers, Fuller and Straughan, on whom the immediate construction of the Line depended, and who were exposed in all weathers, worked in a way that, if it were truly described in words, would perhaps be thought exaggerated, for the expressions that could be with justice used are only such as are descriptive of very great self-sacrifice. It is enough to say that they behaved remarkably well, and showed an obedience to orders, though entailing much suffering, which was worthy of their calling, for they are English Soldiers.

The conduct of Mr. White should be particularly brought to notice. He was admitted in 1853 as a Signaller, and for good conduct as Head Signaller on the Hills, was promoted to the rank of an Assistant in charge of an Office on Rupees 50 a month. His orders in May were to proceed to Calicut, and he could have lived there for about three months on this pay, without any work ; instead of doing which, he volunteered his services as an Artificer, and worked all through the very rainy weather, in the most energetic way, at this self-imposed task.

The Western Coast Line, from Mysore to Mercara, is erected on teak supports, and for most part of the way, from Mercara to Cannanore, from Cannanore to Calicut, a very hard wood called Errool has been chiefly used for this purpose.

## III.—The Eastern Coast Line.

This Report would not be at all complete without mentioning that sanction has been obtained this year to open up Telegraphic Communication with Ceylon from Madras.

By April the Inspectors were all on their several Sections, commencing operations. The Collectors and Engineer Officers are rendering all the assistance in their power, to whom the warmest thanks are due.

It is hoped that, within one month, Pondicherry will be in Telegraphic Communication with Madras, and shortly after, the Line will be opened as far as Negapatam. The whole work will not be in operation before September, as the Cable to cross the Sea at Paumbem will not have arrived much before that. The Line runs along the high road to Trichinopoly as far as Tindevanum. It then branches off to Pondicherry, where the Telegraph has met with the most kind co-operation of the French Government. His Excellency the Governor of the French Provinces in India has facilitated in every way the carrying of the Telegraph Line through the French Settlements at Pondicherry and around Carical, and has made every arrangement to prevent injury being done to the wire.

The Officers, M. Montbrion and M. Guerre, through whom Communication with the French Government is conveyed, have gone out of their way to give assistance, and this Department is under great obligation to them. It is intended to open Telegraph Offices at Pondicherry and Negapatam. It is presumed that some small intermediate Stations will be required near Ramnad. The work is somewhat delayed by there being no wood growing along the whole Coast, except palmyras, which, from their porous and spongy-like nature, are very unsuited for Telegraph posts. From this to Pondicherry, however, jungle-wood posts bought at Madras are being erected. From thence to Negapatam, the Jaffna palmyra (insulated), bamboos, and teak posts, will form the materials of the supports, except through the Sub-Collectorate of Tanjore, where Mr. Cadell has taken such an interest in the Telegraph, that he would have masonry pillars built the whole way through his talooks; while in the other Sections, only a Flying Line could be constructed.

From Negapatam to Ramnad, the posts will be of bamboo, iron-wood, teak, and the Jaffna palmyra. There are several large rivers between Madras and Ramnad, but through the kindness of the Engineer Officers, this will prove no obstruction, as the Telegraph will be carried along the bridges The Palar, however, will be crossed on high masts embedded in basket wells, until the completion of the bridge in course of construction across that River will allow of the wire being removed to it.

## IV.—Improvements introduced.

There has been an improved insulator introduced by Lieutenant Stewart. Its construction is exceedingly simple, and it is admirably suited to insulate the posts from the wire, and its top covering and sloped form prevent a continuous stream of water running during heavy rain from the wire to the post, over the bottom part of the insulator. The shape is given in a plan accompanying this Report.

But by far the greatest step in improvement is the introduction of the system of signalling by the Morse Instrument in all the Offices.

Qualified Assistants have been sent out from England to teach this system, and already great progress has been made by the Native Signallers in its manipulation. The Stations of Madras and Bangalore have been communicating by the Morse system for the last six weeks, and great credit is due to Mr. Cappel, the gentleman who is the Chief of the Instructors sent out to this Circle from England, for the exertions he has made to teach the Native Signallers. He reports very highly of their aptness; and at an examination held in Bangalore, three Signallers, V. Parthasardy, V. Anunasawmy, and J. McGuire, were able, after about three months' teaching and practice, to send and receive twenty-two words a minute, a number faster than which, it is believed, it is impossible to work the instrument.

## V.—Transmission of Messages, with Remarks on the accuracy of their Despatch and the high character of the Madras Signallers.

During the past year, the Private and Public Messages transmitted amounted to 15,782, and in these, fifty-two errors occurred. It should be known, that every Message sent by Telegraph is copied and sent from each Office to the Deputy Superintendent for

examination by the Message Examiner. Thus, if a Telegram is despatched from Madras to Bombay, copies of it, as received at Madras, at Bangalore, and at Bellary, on its road to Bombay, are sent to the Deputy Superintendent. The Madras and Bellary copies are then compared, and if there is any difference between them, the copy of the intermediate Station (Bangalore) is examined, and thus the origin of the mistake detected. This system has been in force in the Madras Circle for two years, and not a single Message is sent on these Lines, however short or unimportant it may be, that does not pass through this scrutiny.

Although fifty-two errors have been detected, and some of them are hardly deserving of the name, yet they have not been forced into notice by the complaints of the senders or receivers. A complaint may have been received four times during the year, but not more it is believed.

There were cases when Messages were sent out to the Bombay or Calcutta Circle. At such times, the Telegram has been found to have been received at, and transmitted correctly from Bellary, which proves the error must have been made in the other Circles. Out of the fifty-two errors, some have occurred between Bellary and the next Stations of Dharwar on one side and Kurnool on the other. It was impossible to say in such cases, whether the mistakes arose in this or in the other Divisions: the fairest way would be to attribute a third of the number of mistakes that have been made between the Frontier Stations of Bellary, Dharwar, and Kurnool, to each of the three Circles of Bombay, Hyderabad, and Madras. In proof of the accuracy with which Messages are transmitted in this Circle, the letter from Dr., now Sir William, O'Shaughnessy to the Madras Chamber of Commerce can be adduced. It is to be found in the Telegraph Reports on all India for the year 1855-56, page 42, and to show that the Madras Offices have not gone back in this respect, a copy of an Extract of the letter B., from the Officiating Superintendent, Lieutenant Stewart, to the Deputy Superintendent, Madras, is appended. To show the consideration in which Madras Signallers and Assistants are held, they have been required for the Hyderabad Circle. European and East Indian lads, who have learnt their work in the Madras Offices, have been sent to Burmah, and others have been required for the Indore Lines, but have not yet started; and again, more Signallers are required from this place for the Line in Ceylon; similar drafts may have been taken from other Circles; and therefore this fact does not prove that the Signallers instructed in Madras are superior to those of Bombay and Calcutta, but certainly it speaks for their being of equal acquirements.

## VI.—Lightning (Accidents from).

The usual number of Coils has been injured by lightning, and in some cases brass has been melted in the Lightning Conductor, and the paper burnt in the passage of the lightning to the earth; but these accidents are common to all Lines, and are unworthy of further record. Once, however, the perfect safety of the Telegraph Offices, as well as of those employed in conducting their duties, was particularly exemplified at Cannanore. On the night of the 16th May, the lightning must have discharged itself very near the Telegraph Office, as it struck a house some 600 yards off, and which nearly touched the Telegraph wire. By far the greater portion of this stroke must have been conducted by the Line into the Telegraph Office, where it only greatly alarmed the Signallers, but did no further injury than destroy the Coil, melt four inches of copper wire, and fuse some brass in the Lightning Conductor, knocking a tumbler which was over the Coil off the table.

## VII.—Financial Statements.

There are two Tables, C. and D., forwarded with this Report: C. shows the Receipts of Cash and the *pro-formâ* Charges for Service Messages during the year at each Station. Statement D. contrasts the Receipts of the several months in this year with the corresponding months in 1855-56. From the latter, it is very satisfactory to observe, that the Cash Receipts of the Telegraph are nearly double of what they were; while the *pro-formâ* Charges for Service Messages show but little increase. This is to be accounted for by the Telegraph becoming gradually more necessary to the public, whereas the Government have from its very commencement appreciated its value, and used it only when absolutely required.

The Cash actually received, added to the *pro-formâ* Charges for Service Messages, makes a total of Rupees 45,849-1-0. Statement E. shows that the expense of working the Department for the past year has been Rupees 51,091-15-11. The Telegraph in Madras has not therefore brought any revenue to Government, but it has done much more than was expected. It has very nearly paid its own expenses. The loss to Government for the benefit of the Telegraph, which has been of such excellent service during the year in making arrangements for the Kimedy Rebellion, the Persian War, and the disturbances in the North-West, has been Rupees 5,243-14-11, or about Rupees 437 a month.

Indirectly, the Telegraph has saved the Government thousands. For instance. A Steamer belonging to some Company may come into the Port at Madras at a time when the Government of India requires one for the transport of Troops. A Telegram is immediately sent off to Calcutta, inquiring whether she should be engaged. The reply comes on the same day in the affirmative. If there had been only the ordinary Post, the Madras Government not having time to consult the Supreme Government, might have on their own responsibility engaged the Steamer, knowing that it was much wanted at Calcutta; the Steamer is sent to Calcutta, and arrives perhaps a day too late. The previous day another Steamer might have come into Calcutta and so been secured, but inasmuch as the Steamer was engaged at Madras on so many thousand Rupees a day, it would be necessary to pay her at this rate for the days she was on her trip to Calcutta. Perhaps no such case as this has ever happened, but similar savings to Government are made constantly, by being able to communicate at once with Calcutta by Telegraph, and the above case is merely given to illustrate in what way the Telegraph pays Government indirectly in actual Cash, putting out of consideration the other immense benefits accruing from it.

Many members of the Government and others, the heads of the commercial community at Madras, would mention, if asked to do so, particular occasions, when the Telegraph was of the utmost benefit to them, and such details would be merely carrying out the orders of the Madras Government, who require facts regarding the Telegraph that bear favorably or otherwise on the interests of Madras, *vide* note at foot of letter dated September 21st 1855, from C. Beadon, Esq., to J. D. Bourdillon, Esq., calling for these Reports; but however interesting such detail might be, it would only swell the bulk of this Report, and surely the extension of the Lines in the Presidency and their repair, the measures introduced to make the Telegraph more fitting to the use of Government, the cost of working it, &c., are facts of much greater importance, more nearly affecting the interests of the Madras Government and the Public, and therefore should also be of greater interest.

Although there is a deficit of Rupees 5,243-14-11 in the Receipts for the last year, yet for all this the statement now put forward, that the Telegraph "*is*" discharging its own working costs, is nevertheless true. There has been a gradual increase during the whole year in the Receipts: this is particularly apparent in the totals given in Table D., for the last six months. The expenses have also increased, owing

*First.*—To the more permanent state of the Lines, bringing the pay of their Establishment into the working charge, instead of being placed to the Construction Account.

*Second.*—To the rates of pay allowed to the Signallers being nearly double of what they were last year, and

*Third.*—To the opening of the Western Coast Line.

Notwithstanding this increase in expense, the debit to Government for the pay of the Establishment and the Contingent Expenses, excluding the Construction Charges for the last six months, is Rupees 31,175-9-5, and the credit side of the Account shows that Rupees 31,127-12-0 is the sum of the Cash Receipts added to the charges made for Service Messages. The deficit here is only Rupees 46-13-5, which is so small an amount, that it does not disprove what has been affirmed—that the Telegraph does now pay its expenses. This satisfactory result is in a measure due to the Western Line proving very remunerative.

The construction of this Line cost the Government Rupees 35,838-10-5, or, as the Line is 203 miles long, it was put up at Rupees 176-8-8 per mile. This is shown in Statement E., and includes every expense. The Lines were opened at the end of September, but as the expense of the Establishment of Signallers, &c., and the fitting-up of the Offices, were all incurred in the beginning of that month, (to be in readiness to work directly the Lines were completed), the working charge of the Line dates from the 1st September up to April 30th inclusive:—the expense of this month, and that of the succeeding one, when it was not generally known that there was a Telegraph opened up to Calicut, is much in excess of the Receipts. But to return, the debit is as follows:—

| | | | |
|---|---|---|---|
| Pay of Establishment, from 1st September to 30th April ... ... ... ... ..... | 5,219 | 8 | 0 |
| Contingent Charges ... ... ... ... | 982 | 3 | 10 |
| Making a Total ... ... ... ... ..... ..... | | | 6,201 11 10 |

The other side of the Sheet stands thus:—

| | | | | | |
|---|---|---|---|---|---|
| Cash Receipts on Private Messages, from 1st September to 30th April ... ... ... ... | 5,857 | 10 | 0 | | |
| *Pro-formâ* Charges for Service Messages, from 1st September to 30th April .. ... ..... | 1,198 | 0 | 0 | | |
| | | | | 7,055 | 10 0 |
| Gain to the Government ... ... ... ... | | | Rupees | 853 | 14 2 |

Four per cent. per annum on Rupees 35,838-10-5 is Rupees 1,433-8-7, or, in seven months, the sum of Rupees 832-9-4 would be realized at the same per cent. in the same time.

The Western Coast Line has therefore actually paid off at the rate of 4 per cent. on the cost of its construction, and, further, paid Rupees 21-1-10 off the principal in seven months.

But this is not the rate at which it *now* pays, for, as before observed, the Charges for two months, when there was almost nothing coming in, were only counterbalanced by the large amount received in the six following months.

As a fair criterion to the rate at which the Line is actually paying, it is well to institute a comparison between the Receipts and Expenditure for the last six months of the year 1856-57, or in other words, from the second month after the opening of the Line, November 1856, (by which time the Telegraph on the Western Coast had become generally used,) to the end of April 1857.

The Account then stands thus:—

| | | | |
|---|---|---|---|
| Cash Receipts for Private Messages, from November 1st to April 30th ..... | Rs. | 5,483 | 14 0 |
| *Pro-formâ* Charges for Service Messages for ditto ... ... | „ | 1,155 | 0 0 |
| Total ... ... ..... | Rs. | 6,638 | 14 0 |
| Total Expenditure, including Pay and Contingencies .. ... | „ | 4,707 | 1 4 |
| Gain to Government in six months ... ... ..... | Rs. | 1,931 | 12 8 |

Interest at Rupees 10-10-8, or 10⅔ per cent. per annum, on Rupees 35,838, is Rupees 3,862-0-2, or for the half-year is Rupees 1,931-0-1.

From this, it is seen, that the Western Coast Line, from Mysore to Calicut *viâ* Mercara and Cannanore, has actually paid at 4 per cent. per annum on the cost of its construction, but that it is at present paying at the rate of 10⅔ per cent. per annum.

Irrespective of these large returns from the opening up of this small Line received *on the spot*, a great increase must have been received in the Bombay Office for Messages sent to the Western Coast Ports, as that Presidency Town is the emporium of the Trade on the Coast of Malabar. This return, which in all probability exceeds the amounts received at Mercara, Cannanore, and Calicut, has been gained without any corresponding outlay in that Circle, for no new Line has been put up, but the Main Line already constructed to put Bombay in Telegraphic Communication with Madras answers also for all the Messages to the Western Coast.

H. BROOKING,

*Deputy Superintendent, Electric Telegraphs.*

DEPUTY SUPERINTENDENT'S OFFICE;
*Madras,*
*The 24th June* 1857.

# APPENDIX A.

On the night of the 5th, after very heavy rain, this marsh began to run, and carried away in its course several of the Telegraph posts, and broke the wire.

On the next morning, I was on the spot with the Artificer, and managed to secure the end of the wire, and to get up Communication for a short time, after very severe toil. As the work was being completed, the wire snapped in the midst of the swamp, and prevented the possibility of our doing any thing more on that day, as it was already past 4.

It was very dispiriting, for eight hours' labor was all lost. During the greater part of this time, the rain had poured down in floods, and at its end a very severe thunder and lightning-storm had played around us. The pain, too, when laying hold of the wire, was acute, for the Battery at either Stations was very powerful, and our wet feet and bodies made us good conductors for the intense current of electricity.

In the morning, to get hold of the ends of the wire, we had crossed below the swamp from the road to the opposite ridge, and while occupied in our work, we had not noticed that the bog had again begun to shift.

We now saw that a mass of earth of some extent was gradually moving, I should think, at the rate of a mile an hour. It was a mass of slimy mud and water, in the midst of which great heaps of floating peat were drifting down, some of them blocks of 20 cubic feet.

Early on the next morning, I pitched a Tent beyond the scene of the accident and put up a temporary Office, and communication was established; and from it I laid out a new Line, which avoided the bog. Within five days, the Office was again removed into Ootacamund, and the new Line was finished. This very serious accident had not occasioned more than twenty-four hours' interruption.

# APPENDIX B.

*EXTRACT of a Letter from the Officiating Superintendent, Electric Telegraphs in India, No.* 1195, *dated* 27*th February* 1857, *to the Deputy Superintendent, Electric Telegraphs, Madras.*

PARA. 3. The statements already supplied by you are extremely satisfactory, and tend to confirm the high opinion I have formed of the care and attention with which the Signallers under your orders generally carry on their duties. The proportional number of errors attributable to the Madras Circle is, as far as I am yet able to judge, smaller than in any of the other Deputy Superintendencies—a circumstance which I shall have much pleasure in bringing to the notice of the Government of India.

# APPENDIX C.

*STATEMENT of Collections and Pro-formâ Charges made in the Madras Presidency during* 1856-57.

| No. | Stations. | May. | June. | July. | August. | September. | October. | November. | December. | January. | February. | March. | April. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | PRIVATE. | | | | | | | | |
| 1 | Madras ... | 1,061 8 | 902 4 | 769 12 | 838 12 | 1,103 0 | 1,134 12 | 1,332 10 | 1,167 0 | 1,505 14 | 1,578 8 | 1,830 0 | 1,623 8 | |
| 2 | Guindy ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 23 4 | 10 8 | 0 0 | 1 0 | |
| 3 | Mount ... | 10 2 | 7 12 | 10 0 | 22 2 | 17 12 | 4 8 | 15 0 | 22 8 | 10 4 | 7 4 | 5 12 | 7 0 | |
| 4 | Poonamallee ... | 6 8 | 5 0 | 4 12 | 4 10 | 0 0 | 1 0 | 1 6 | 14 12 | 7 8 | 9 0 | 6 2 | 2 2 | |
| 5 | Arcot ... | 40 6 | 70 12 | 49 12 | 45 12 | 71 4 | 39 12 | 31 0 | 67 4 | 34 8 | 56 0 | 67 12 | 97 0 | |
| 6 | Vaniambaddy ... | 6 0 | 5 0 | 6 4 | 7 8 | 0 0 | 1 0 | 1 0 | 1 8 | 0 0 | 0 0 | 0 0 | 0 0 | |
| 7 | Bangalore ... | 156 12 | 234 8 | 237 12 | 183 0 | 207 8 | 412 0 | 216 0 | 252 4 | 276 4 | 348 0 | 354 12 | 358 4 | |
| 8 | Toomcoor ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 6 4 | 10 0 | 0 0 | 0 0 | 0 0 | |
| 9 | Herrioor ... | 7 8 | 5 0 | 1 8 | 0 0 | 16 8 | 25 8 | 8 0 | 13 0 | 2 0 | 0 0 | 0 0 | 0 0 | |
| 10 | Bellary ... | 43 12 | 56 8 | 37 12 | 124 8 | 49 12 | 52 0 | 72 12 | 92 0 | 80 12 | 59 8 | 84 4 | 80 4 | |
| 11 | Humpasagur ... | 2 0 | 2 0 | 3 0 | 0 0 | 2 0 | 1 0 | 0 0 | 2 0 | 0 0 | 0 0 | 0 0 | 0 0 | |
| 12 | Mysore ... | 98 8 | 100 6 | 195 0 | 95 8 | 69 12 | 123 0 | 128 4 | 114 4 | 172 4 | 147 8 | 145 0 | 193 8 | |
| 13 | Ootacamund ... | 295 8 | 194 8 | 190 12 | 263 8 | 210 8 | 286 4 | 195 12 | 306 12 | 194 4 | 165 4 | 213 0 | 225 8 | |
| 14 | Mercara ... | 0 0 | 0 0 | 0 0 | 0 0 | 1 8 | 30 8 | 17 12 | 58 12 | 24 12 | 26 0 | 15 8 | 62 6 | |
| 15 | Cannanore ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 173 4 | 332 0 | 337 12 | 347 2 | 286 8 | 157 6 | 88 4 | |
| 16 | Calicut ... | 0 0 | 0 0 | 0 0 | 0 0 | 2 0 | 166 8 | 411 4 | 642 0 | 613 12 | 506 12 | 578 12 | 977 4 | |
| | Totals ... | 1,728 8 | 1,583 10 | 1,506 4 | 1,585 4 | 1,751 8 | 2,451 0 | 2,762 12 | 3,098 0 | 3,302 8 | 3,200 12 | 3,458 4 | 3,716 0 | 30,144 6 |

# APPENDIX C.—*(Continued.)*

*STATEMENT of Collections and Pro-formâ Charges made in the Madras Presidency during* 1856-57.

| No. | Stations. | May. | June. | July. | August. | September. | October. | November. | December. | January. | February. | March | April. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SERVICE. | | | | | | | | |
| 1 | Madras ... | 273 8 | 49 4 | 286 8 | 807 10 | 154 14 | 24 0 | 51 12 | 81 15 | 184 8 | 203 7 | 657 15 | 281 12 | |
| 2 | Fort ... | 503 4 | 141 0 | 0 0 | 0 0 | 308 0 | 397 2 | 552 0 | 1,306 1 | 1,297 7 | 1,263 13 | 1,183 0 | 1,376 7 | |
| 3 | Guindy ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 15 3 | 152 1 | 46 2 | 29 4 | |
| 4 | Mount ... | 4 2 | 0 0 | 0 9 | 0 0 | 5 1 | 1 5 | 0 0 | 14 4 | 1 5 | 2 1 | 21 12 | 18 9 | |
| 5 | Poonamallee ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1 2 | 0 0 | 2 4 | 6 6 | 5 4 | 0 0 | 2 4 | |
| 6 | Arcot ... | 4 8 | 0 0 | 22 12 | 6 12 | 12 12 | 16 4 | 9 4 | 22 8 | 50 4 | 49 8 | 63 8 | 169 12 | |
| 7 | Bangalore ... | 300 12 | 155 0 | 9 12 | 23 12 | 45 4 | 16 12 | 31 0 | 84 12 | 93 12 | 128 12 | 278 8 | 136 8 | |
| 8 | Herricor ... | 0 0 | 0 0 | 2 4 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | |
| 9 | Bellary ... | 4 8 | 4 8 | 9 0 | 45 0 | 43 8 | 95 8 | 16 4 | 18 0 | 30 8 | 68 0 | 34 8 | 71 12 | |
| 10 | Humpasagur ... | 0 0 | 32 4 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | |
| 11 | Mysore ... | 0 0 | 15 0 | 3 0 | 8 4 | 33 0 | 6 4 | 1 8 | 22 12 | 27 0 | 25 8 | 33 0 | 22 4 | |
| 12 | Ootacamund ... | 37 8 | 41 4 | 15 12 | 15 0 | 67 8 | 19 12 | 6 12 | 23 8 | 37 0 | 4 8 | 57 8 | 67 8 | |
| 13 | Mercara ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 92 8 | 29 12 | 50 12 | 23 8 | 140 4 | |
| 14 | Cannanore ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 10 0 | 27 0 | 0 0 | 172 8 | 118 8 | 65 12 | 9 4 | |
| 15 | Calicut ... | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 38 0 | 48 12 | 70 12 | 125 8 | 79 0 | 46 8 | 54 12 | |
| | Totals ... | 1,128 2 | 438 4 | 349 9 | 906 6 | 669 15 | 621 1 | 744 4 | 1,739 4 | 2,071 1 | 2,151 2 | 2,503 9 | 2,380 4 | 15,702 13 |
| | Total of Private and Service Messages during each month | 2,856 10 | 2,021 14 | 1,855 13 | 2,491 10 | 2,423 *5 | 3,072 1 | 3,507 0 | 4,837 4 | 5,373 9 | 5,351 14 | 5,961 13 | 6,096 4 | *45,849 1 |

* Including 1-14 cost of Messages sent by Post Office.

# APPENDIX D.

*STATEMENT showing the Amount of Collections and Pro-formâ Charges during the Official Years* 1855-56 *and* 1856-57, *exhibiting the Increase during the last-mentioned Year.*

| | 1855-56. Private. | 1856-57. Private. | Increase. | 1855-56. Public. | 1856-57. Public. | Increase. | Remarks. |
|---|---|---|---|---|---|---|---|
| May ... ... ... ..... | 1,129 8 | 1,728 8 | 599 0 | 744 0 | 1,128 2 | 384 2 | |
| June ... ... ... ... ... | 904 0 | 1,583 10 | 679 10 | 1,102 0 | 438 4 | 0 0 | 663-12 Decrease. |
| July ... ... ... ... ... | 892 0 | 1,506 4 | 614 4 | 687 8 | 349 9 | 0 0 | 337-15 Ditto. |
| August ... ... ... ... | 1,011 12 | 1,585 4 | 573 8 | 586 8 | 906 6 | 319 14 | |
| September ... ... ..... | 1,153 4 | 1,751 8 | 598 4 | 630 12 | 669 15 | 39 3 | |
| October ... ... ... ... | 2,048 12 | 2,451 0 | 402 4 | 1,599 12 | 621 1 | 0 0 | 978-11 Decrease. |
| November ... ... ..... | 1,310 0 | 2,762 12 | 1,452 12 | 1,267 8 | 744 4 | 0 0 | 523-4 Ditto. |
| December ... ... ... ... | 1,551 0 | 3,098 0 | 1,547 0 | 989 7 | 1,739 4 | 749 13 | 2,503-10 Ditto. |
| January... ... ... ..... | 1,930 2 | 3,302 8 | 1,372 6 | 1,122 15 | 2,071 1 | 948 2 | |
| February ... ... ... ... | 1,542 10 | 3,200 12 | 1,658 2 | 1,320 9 | 2,151 2 | 830 9 | |
| March ... ... ... ..... | 1,685 2 | 3,458 4 | 1,773 2 | 1,346 14 | 2,503 9 | 1,156 11 | |
| April ... ... ... ... ... | 1,145 0 | 3,716 0 | 2,571 0 | 602 9 | 2,380 4 | 1,777 11 | |
| | 16,303 2 | 30,144 6 | 13,841 4 | 12,000 6 | 15,704 11 | 6,206 1 | |
| | | | | | | 2,503 10 | Deduct Decrease. |
| | | | | | | 3,704 5 | 1-14 included. |

# APPENDIX E.

*STATEMENT of the Expenses incurred in Working of the Line of Electric Telegraph during the Official Year* 1856-57.

| | | | |
|---|---|---|---|
| Salary of the Deputy Superintendent and his Office Establishment, Assistants, Signallers, and Line Patrols, &c. &c.... ... ... ... ... ... ..... | 42,314 | 7 | 1 |
| Office and Line Contingencies ... ... ... ... | 8,777 | 8 | 10 |
| Total, Rupees ..... | 51,091 | 15 | 11 |

# APPENDIX F.

*STATEMENT exhibiting the Total Cost of the Western Coast Line, from Mysore to Calicut vid Mercara and Cannanore, including the Value of Stores purchased and received from the different Arsenals.*

| | | | |
|---|---|---|---|
| Salary of Contingent and Fixed Establishments ... ... | 13,393 | 12 | 4 |
| Amount advanced to Colonel Green ... ... ... ... .. | 4,000 | 0 | 0 |
| Stores purchased... ... ... ... ... ... ... | 2,037 | 1 | 9 |
| Ditto received from Arsenals ... ... ... ... ..... | 759 | 11 | 3 |
| Ditto ditto from the Bombay Circle ... .. ... | 15,648 | 1 | 1 |
| Total, Rupees ..... | 35,838 | 10 | 5 |

# BOMBAY.

A BRIEF view of the state of the Bombay Lines, on the 30th April 1856, may facilitate the objects of this Report.

2. Previously to the late Lieutenant Chauncy leaving the Bombay Presidency, to officiate for the Superintendent of the Electric Telegraph in India, arrangements were made for the complete construction of the Lines of Telegraph, on the plan described in the Superintendent's Manual; and but shortly after the commencement of the period to which this Report refers, these construction operations were brought to a close.

3. The course of the Line between the Stations had generally been well selected; but in some instances it would have been better to have constructed it nearer the road. Between Callian and the Bhore Ghaut, there are several unnecessary deviations from the direct course.

4. The Teak posts used in the construction of the Lines were, in many instances, far too light, often crooked; and the smallness of the tops, compared with the Metal Caps into which they were inserted, gave the Line an appearance which one would rather had been otherwise. These remarks do not apply to the Belgaum and Dharwar Sections, in which squared timber has been used.

5. For many miles in the Dharwar Section, the posts were necessarily erected in the cotton soil, and not having been properly tamped, considerable difficulty was anticipated in keeping the post anything like vertical during the rains.

6. The double Line, extending from Bombay to Callian, on which the first attempt at insulation had failed, remained as extemporally, but ingeniously insulated by 3rd Class Inspector Mr. G. H. Smith, by means of short length of bamboos.

7. Arrangements had been made for the erection of Telegraph Offices at Dharwar, Belgaum, Kolapore, and Sattara. At Malligaum, a Bungalow was purchased for an Office. In the previous Report the Callian Office is alluded to, but subsequently to the publication of that Report, it was entirely destroyed by fire; the disaster is less to be regretted, when the extreme unhealthiness of the Station is considered.

8. In Bombay, the Office accommodation was extremely limited and objectionable. The Calcutta Line terminated in the General Office, the Madras Line in a small building near the Ramparts, the Parell Line in the Secretariat Buildings: one of the consequences of this arrangement obviously was, that the Inspector in charge, whilst personally attending to one Office, was necessarily, to some extent, neglecting two.

9. As the character of the Bombay Establishment was so fully and so explicitly reported by the Deputy Superintendent in the last Report, it is not necessary to allude to it here. There is a fact, however, which probably may be considered worthy of special notice. The proportion of Hindoos employed in the Bombay Offices as Signallers amounted to only about 4 per cent., whilst in the Madras Section upwards of 40 per cent. of the Signalling Clerks were Hindoos.

10. The Superintendent's Report, published early in 1856, contains allusion to the accounts in the Bombay Section, contrasted with those of other Sections, and there probably are reasons why they should be alluded to in this Report. There are, however, honorable motives for which remarks may be withheld.

11. There is hardly one point connected with the Telegraph Department more important to all concerned than its integrity, and however unpleasant it may be, under certain circumstances, to report on such a subject, it cannot be denied that the Telegraph Department in Bombay had not the confidence either of the Government or of the Public to the fullest extent.

12. This will probably be the best opportunity for stating, that this Report is only intended to be a detail of facts; it is not desired to impute blame to any one; and consequently, to distinguish between what was expedient, and what was culpable, generally speaking, is avoided.

13. There has been no extension of the Lines in the Bombay Presidency during the period under report.

14. An Office was opened at Tannah subsequently to the destruction of the Callian Office; one also has been opened at Gudduck, *it* has not proved remunerative.

15. The accommodation at the Bombay Office, both for the Public and the Department, has been improved, but it still remains inadequate for the purpose.

16. The year 1856-57 has been remarkable for changes in the Working Establishment:—1st Class Inspector Mr. Blacknight and Assistant Mr. Todd resigned; 1st Class Inspector Mr. Mayes removed to the charge of the Hyderabad Section; 2nd Class Inspector Mr. Denton to the Madras Section; 3rd Class Inspector Mr. Smith to the Agra Division; Artificers Messrs. Jennings, Featherstone, and Dowling have also been removed; Mr. Gartlan, of the Deputy Superintendent's Office, has been transferred to the Hyderabad Section as 3rd Class Inspector: in addition to the above-mentioned, death has removed Mr. Leek in charge of the Poona Office, and Mr. Henshaw, the Accountant of the Deputy Superintendent's Office.

17. In all instances of removal to other Lines, the individuals have been selected, not by the Deputy Superintendent Bombay, but by those who have desired their services; these transfers, it is believed, with one exception, have secured the promotion of the Officers removed.

18. The promotions consequent on the removals above-mentioned have been made among the Officers of the Bombay Section, excepting only in the case of Mr. Blacknight's successor.

19. In reporting on the operations of an important Section of the Indian Lines of Telegraph, it would be interesting to be able to give details of cases, in which the Telegraph has answered important ends, and contributed immensely to the advantage of the Public and of the Service; as no intimation was given regarding any Report on this head, no attempt has been made by the Deputy Superintendent to ascertain and record

such particulars. Circumstances of the kind, although interesting, are, however, only accidental, and in them there are frequently involved elements over which the Department has no control.

20. Probably, the proper subject for Report is, how far the Telegraph has conveyed quickly and correctly its communications, and how far the Department has kept secret the information entrusted to its confidence?

21. It has been the rule in the Bombay Offices, as in those of Bengal and the North-West, invariably to clear out the Messages received during the day, and not to cease work in the night till this has been done. By far the greater part of the ordinary Messages are left at the Bombay Office between 4 P. M. and sun-set, and as a general rule, Messages left as described, have been delivered at our most distant Stations, Calcutta and Madras, early in the following morning; a very great portion of the work of the Telegraph Department, especially on the Calcutta side, has been done after ordinary Office-hours; and considering the great pressure of work on the Calcutta Line, and many other circumstances against which the Department has had to contend, the business of the Office has been transacted with creditable despatch, even speaking telegraphically.

22. Up to November 1856, the Messages passing through the Bombay Office appear to have been subjected to no rigid examination, with a view to detection and prevention of errors; a check of this kind had proved eminently successful on the Madras side; it had secured correctness in the signalling of Messages to a degree highly satisfactory. The result of the first examinations showed great need of increased care in the Bombay Offices in this particular, and since the adoption of proper measures to secure it, the Bombay hands have improved in the general correctness of their signalling.

23. Complaints, it may be presumed, have, in some instances, been sent direct to the Officiating Superintendent of Electric Telegraph in India. Of some of these the Deputy Superintendent of the Section may not be aware. The complaints which have come to the notice of the writer during the period under report, and which have had their origin in the Bombay Section, are extremely few, hardly exceeding one a month; whilst the number of Messages left for transmission at the Offices in the Bombay Section, exclusive of transits, averages nearly fifteen hundred per mensem.

24. In forming any estimate of the way in which the Department has discharged its duties, based upon the fewness of the complaints, it should be borne in mind, however, that the Department is generally deeply indebted to the forbearance of its constituents.

25. The fidelity of the persons employed in the Telegraph Office, in not disclosing the import of Messages which they are bound to keep secret, is generally a matter of paramount importance; there is no place where it is more desirable that the Telegraph Establishment should be above suspicion, than in Bombay, and in consequence of the trade and speculation in Opium, it is probable there is no Station where greater temptation may be held out to seduce the employés from their integrity.

26. There was at one time strong reason to believe political intelligence, to some extent, was revealed by one or more persons connected with the Bombay Office; the measures taken, consequent upon a discovery of this circumstance, it is believed, have

perfectly succeeded in preventing any thing of the kind, if not in discovering the channel through which the communication passed : the particulars of the case, though interesting, cannot conveniently be detailed in this Report.

27. The results of enquiries, with reference to the secrecy observed in the Department, in Mercantile communications, have proved perfectly satisfactory, and since certain changes were made in the Bombay Office, affecting the general arrangements, as well as the individuals, it is believed there is no reason to suspect any breach of confidence.

28. In one instance, there was a *primâ facie* case against the Office, but upon enquiring, it became evident beyond all doubt, that the information had been obtained from the Message subsequently to its delivery to the Firm to which it was addressed.

29. With the above exception, for nearly four months there has been no complaint. Supposing information regarding the state of the Opium Market to be revealed in advance of news in the legitimate way, the fact at least would soon be known, although the source of the information might be latent to all but the few immediately concerned in the clandestine act. When this circumstance is taken into consideration, the absence of complaint for several months must be regarded as highly satisfactory.

30. The attempt to bribe a Signaller of the Bombay Office, and the consequent proceedings before the Supreme Court, may be deemed worthy of record in this Report; it may illustrate the state of the law with reference to cases of this kind, and show how desirable it is, that the character of the Office should be so far above suspicion, as to deter any one from attempting to bribe its functionaries ; it is hopeless and useless to seek assistance from the law, in deterring the unprincipled from attempts to corrupt the Signallers.

31. In the month of August 1856, a writer in a Government Office spoke to one of the Signallers employed in the Bombay Telegraph Office, and told him he knew of a person who would pay him well, if he would communicate Opium news received by Telegraph ; the Signaller (John D'Cruz), who is a thoroughly respectable youth, refused to have anything to say to the person, but shortly after communicated what had passed to the Inspector in charge of the Bombay Office, by whom he was advised to see the writer again, to get to know who the Merchant was, and also to accept the bribe if offered, and to bring the money to the Telegraph Office ; this was done, and the sum received was Rupees 20, Rupees 19 of which were brought to the Deputy Superintendent. The lad who first communicated with the Signaller being clamorous, received one Rupee for his share in the matter.

32. The case was immediately brought to the notice of Government, and by its orders reported upon by the Company's Solicitor.

33. The Hon'ble Company's Solicitor was perfectly satisfied that the bribe had been offered, and an offence committed, and that there was ample evidence to support the case ; but in consideration of the state of the law, proceedings were not advised, on the presumption, that a failure in the prosecution would be worse than no prosecution.

34. In a previous case, the Advocate General having given a decided opinion, that in common law, to incite to commit an offence was itself an offence, the Inspector in

charge of the Bombay Office took up the case, and became the prosecutor, the Government having declined an official prosecution.

35. The case was brought into the Supreme Court of Bombay, and before the Chief Justice. As it seems desirable to explain, it may be well to do so here, that the Chief Justice of Bombay, it is well known, entertains a noble abhorrence of any thing like the holding out of an inducement for the commission of crime; and His Lordship has manifested extreme vigilance in watching cases against offenders, when any thing like a trap had been laid for their detection, if that trap could in any way be regarded as including a temptation to offend.

36. Whether owing to the influence of this generous and proper feeling, or otherwise, is not known, but it is certain, His Lordship, in charging the Grand Jury, charged so directly and clearly against the case for the prosecution, and at such length, as might indicate a fear on His Lordship's part, lest the evidence should mislead the Jury. Contrary, however, to expectation, a True Bill was found.

37. On the case being called, it was at once withdrawn, as there was no probability of conviction. Without giving any opinion on the question, as to whether, on the whole, a conviction ought to have been expected, it is not improbable, could the evidence have insured a conviction, a warning from the Bench with, or even without the infliction of a mitigated penalty, might have done good.

38. It may be as well to note how the prosecution failed, and what was the point relied upon for the defence. It was this, "the money was not given to procure the "disclosure of Messages generally, but for the purpose of obtaining the early delivery "of the Merchant's own Messages"—of course there arises, by this statement, a difficulty which is often felt in dealing with cases, in which the character of the defence depends upon the motives of the offender.

39. Mr. D'Cruz throughout affirmed, what was desired was any information regarding price of Opium, no matter how obtained, if it would place the Merchant in an advantageous position, with reference to the Opium Market.

40. Mr. D'Cruz went into Court with an unimpeached character; he had at once brought the bribe to his superiors, and had refused to receive it without the sanction of his Inspector.

41. The writer who at first communicated with Mr. D'Cruz, had he gone into Court, it is believed, would have stated, it was to procure the early delivery of the Merchant's own Message that the bribe was paid; this, however, was not what he had stated before the Hon'ble Company's Solicitor, and he had proved himself a dishonest person by accepting part of the price of dishonesty, which Mr. D'Cruz had declined.

42. There is probably not one person in Bombay acquainted with the practices of the Opium speculators, who believes for a moment, that the early delivery of the Merchant's own Message was the object for which the bribe was offered, and perhaps the result of the suggestion in this case affords one of the happiest illustrations of the success of a mere *buzz fuzz* defence.

43. It would not be acting fairly by the Electric Telegraph Establishment in Bombay, to pass unnoticed circumstances which must be regarded as disadvantages against which it has had to contend.

44. The removal of the Officers of the Department, as previously noticed, cannot be regarded otherwise than as a disadvantage, particularly when it is considered that many of these were selected from the Establishment, and consequently, it is only fair to presume, amongst them, there would be some of the best hands. Considered numerically only, the removals from the Section amount to fully one-half of the original Establishment of Inspectors and Artificers.

45. In the month of February 1857, a Telegraph party was sent to Persia, and as the Assistants and Signallers were selected for the most part from the Bombay Section, the regular arrangements of the Division were again disturbed.

46. In February also, commenced the introduction of new Instruments, and a new system of Signals, and although the highest expectations are entertained with reference to the results, yet the temporary existence of two different kinds of Instruments and Signals has presented a difficulty, which the partial use of the new Instrument has not, in all instances, removed.

47. There is a source of annoyance to which it is unpleasant to have to allude, but its mention appears imperative. At intervals, by far too frequently, feuds break out between the adjoining Terminal Offices of contiguous Sections, between the Malligaum and Indore Offices; this circumstance has tended greatly to the disadvantage of the general working of the Line; periodically, recriminatory complaints from those Stations become frequent, and it is feared one of the most serious interruptions within the Bombay Section, on the Agra Line, had its origin in a dispute between the two Sections. By far the greater part of the errors in Signalling appear to arise between the adjoining Terminal Stations of contiguous Sections. Much blame is not unfrequently to be attributed to the injudicious way in which the Assistants report Offices not under the superintendence of the head of their own Division of the Department. These Messages passing through the very Offices to which they impute discredit, often irritate them. Conciliatory Messages would be much better received, and do more good. Reports are also occasionally passed along the Line, professedly finding fault with Officers, but which are really little better than advertisements in favor of those who send them.

48. It may not be deemed improper to notice one or two particulars, in which alterations might be made to the advantage of the Department generally, or to that of the Bombay Section in particular. 1. Of the latter kind, the closing of the Gudduck Office is suggested. Within a length of about 90 miles, we have three Offices, which is very objectionable; and as neither the Belgaum nor the Dharwar one can well be dispensed with, the closing of the Gudduck Office is advised. 2. The Mahableshwur Line is at present extended from the Sattara Office, and as Sattara is not a regular Repeating Station, the calling into use that Office so constantly, as it is necessary to do when there is much telegraphic business with Mahableshwur, causes great delay and inconvenience; it would therefore be to the advantage of the Department to take the Line to Mahableshwur direct from Poona.

49. The plans for Telegraph Offices in the Bombay Presidency do not arrange for the accommodation necessary to the convenience of the Department. It may often be found advisable to place in charge, at some of the out-stations, a respectable married man, but the accommodation contemplated hardly provides for this; and the Assistant will be obliged to hire a house away from the Office, and when not provided with suitable quarters, he becomes entitled to an extra allowance, and then arises the incongruity of paying an Assistant extra, when he resides at a distance from his duties.

50. The great extent to which immorality has prevailed at some of our Offices at out-stations, suggests the propriety of employing as Office Assistants only men of known integrity of character; it might tend greatly to the advantage of the Department, if parents or friends, in seeking employment for youths in a Telegraph Office, could anticipate from the Assistant in charge, the inculcation of correct principles enforced by good example.

51. At the Mahableshwur Station, Dr. Winchester, the Magistrate, has shown a most praiseworthy interest in the Electric Telegraph Establishment; the Signallers have received from him medical assistance whenever needed, as well as partial oversight and advice in the discharge of the duties of the Office. For aid of this kind the Department can hardly be too grateful, and it is worthy of consideration, whether it would not be worth while for Government to request certain authorities at out-stations to endeavor to exercise, for the advantage of the Department, the influence necessarily more or less identified with their position.

52. The progress of the Signallers in acquiring the knowledge of the new Instrument, under the tuition of the Assistants sent out by the Hon'ble the Court of Directors, has been more than satisfactory. Any special detail, even up to the latest period to which this Report has reference, would be premature.

R. L. BRUNTON,
*Deputy Superintendent, Electric Telegraph.*

# BENGAL.

## LINES.

As noticed in the Report on the operations of the Electric Telegraph in India for February, March, and April 1856, the last Quarter of the Official Year 1855-56, the sanction of Government had been obtained to the expenditure of Rupees 18,854-14-7, for the purpose of substituting saul and other timber supports for the Line, in place of the palmyra posts between the River Kurumnasa and Raneegunge. It is needless now to go over the reasons that led to this measure, and it merely remains to record that Messrs. Seeb Chunder Nundy and Curwen satisfactorily executed the work entrusted to them; and that within the year to which the present Report refers, the many vexatious annoyances attributable to the palmyra supports were at an end.

2. The opportunity afforded by the re-construction of the portion of the Lines above referred to, was taken for making such improvements in alignment as were evidently called for, and the Line is now carried along the hilly Districts, between the Burrakur and the Lillajan, in a manner that speaks most highly for the judgment that has been displayed by the Inspectors in meeting difficulties not found in level parts of the country.

3. It is unfortunate that no subterranean Line, which has yet been laid down in India, remains for any length of time in good working order. Owing to the rapid deterioration, in this country, of the gutta-percha coating, used for insulating the wire, by means of which communication is carried on—or to defects in making the joints connecting the different lengths of the wire, or to accidental injuries that the Line may chance to sustain when in the ground, for want of a defensive armour for the gutta-percha, these Lines have hitherto invariably failed, within a very short time of their completion. One, 15 miles in length, was laid down between the Calcutta Signal Office and Barrackpore; and at the time that the Governor General occasionally resided at the latter Station, in the early part of 1856, it became defective; so that an over-ground Line had to be erected for keeping up Telegraphic Communication. This Line was run out in two days, and suspended, as a temporary arrangement, to the trees by the side of the road, until such time as it could be constructed leisurely in a more permanent manner. Before the rains set in, the wire was placed on soondry-wood bullahs lodged in screw piles, at an expense of Rupees* 4,703-12-2, and as might be expected, this Line has worked without interruption, excepting on one occasion, when some elephants from the Barrackpore Depôt got loose and knocked down the supports.

4. In Calcutta, it was also found necessary to re-place the under-ground Line that connected the Signal Office with the submerged crossing at the Hooghly on the North-West Line. A wire was therefore suspended between the two points on lofty spars, rising from 45 to 50 feet from the ground, and elevating it far above the chance of injury from any ordinary causes.

5. With the view of improving the arrangements on the Southern Division of the Lines in Bengal, sanction was obtained for the expenditure of Rupees 2,000 for the

* Including the value of stores.

construction of a new Line of galvanized wire of the No. 1 guage, between the Telegraph Stations at Atcheepore and Hooghly Point. A reference to the accompanying Sketch of the Lines of the Southern Division will at once explain the important results obtained by the erection of the Line in question, and make the facilities which it affords for rapid work apparent. The new Line was completed within three months of its commencement, under the supervision of Mr. Inspector Bailey, and during the year to which this Report refers, worked in a thoroughly satisfactory manner, without a single interruption to communication taking place.

6. An inspection of the Lines in the Southern Division, made early in 1856, sufficed to demonstrate that Telegraph Communication could not possibly be carried on during another rainy season, unless most extensive alterations and repairs were carried out prior to the setting in of the monsoons. Sanction was accordingly obtained for the expenditure of Rupees* 20,082-8-10 for this purpose, and no time was lost in commencing operations. Whilst Mr. Inspector Bailey was in Bengal, he re-constructed the Line from Calcutta to Diamond Harbour, the portion of which, as far as Bistapore, already consisted of No. 1 guage galvanized wire supported on iron-wood posts. The supports were, however, very badly planted, and had to be re-arranged; in some parts large villages on the road-side required to be crossed by carrying the Line over the houses on lofty spars rising 60 feet from the ground. From Bistapore to Diamond Harbour the old experimental Line, formed of thick rods of iron, from 3 to $\frac{5}{8}$ of an inch in diameter and welded together, was yet in use; the supports being bamboos, often only 4 feet above the ground. The latter portion had of necessity to be re-placed with the No. 1 guage wire, carried on soondry-wood posts lodged in screw piles, and a proportion of about one iron-wood post for four soondry bullies was fortunately available from the number used beyond what was necessary on the Section above Bistapore. Those supports were accordingly used intermediately, as far as they would go, to the material benefit of the whole Line. On the removal of Mr. Bailey from the Bengal Circle, I entrusted the work in this Division to Mr. McIntyre, who re-placed a short Cable of about 1,200 feet in length over the Diamond Harbour Creek, by a most superb Flying Line, carried on spars planted on either bank, and towering 65 feet above the ground. He also re-constructed the whole of the Line from Diamond Harbour to Saugor, a distance of 56½ miles, which, although it had been erected of the No. 1 guaged wire, supported on iron-wood posts, was, without exception, the worst piece of construction I had ever seen. As far as Fultah, or about half way between Diamond Harbour and Mud Point, the Line pursued the general direction of the river bunds; but the latter terminating at Fultah, the Line had to be carried through the heart of those dense jungles for which the Soonberbunds and Saugor Island are notorious. This work was done by Mr. McIntyre in a most masterly style; the straightest possible route was taken, and a street 30 feet wide cleared the whole distance, so as to keep the wire free from contact with the forest trees, and to facilitate, as much as possible, the work of inspection and repair. The necessity for the extensive clearing referred to, extending, as it did, over 46½ miles of country, in which there was not an inhabitant of any kind, excepting those inimical to man, and where it was impossible to induce workmen to go without paying them roundly for the risks and inconveniences they had to put up with, seriously affected the calculations on which the estimate had been made; and ultimately, it was found that the whole expenditure amounted up to Rupees* 23,604-0-0. In this sum was also included the cost

* Including the value of stores.

of the entire re-construction of the Line from Kookrahatty to Kedgeree, along which, up to the period now under review, communication had been maintained on the original iron rod experimental Line, and which had become even in a worse condition than that referred to between Bistapore and Diamond Harbour. The old Kookrahatty and Kedgeree Line was, therefore, taken down, and one of No. 8 guaged wire, supported on soondry-wood posts, lodged on screw piles, run up within two months of the commencement of the work; and a short Cable across the River Huklee, at Tarapookia, in this Line, was also re-placed by a Flying Line supported on lofty masts. The use of the wire of No. 8 guage became necessary from the stock of material of the larger size, at Calcutta, having been expended. The most numerous and long-continued interruptions to communications in the Bengal Circle on any Line for the period to which this Report refers, occurred on the Line now under remark prior to its being re-constructed; a large establishment of Line Guards had to be maintained at the rate of one man to every 2 miles; and it was only by unremitting exertion on the part of the establishment, and by a considerable expenditure for repairs, that communication was kept up during the rainy season. The part of the country through which this Line runs is infested with a large species of monkey, and hundreds of these animals might have been seen hanging on the iron rod, and playing their tricks in such a manner, that it was not at all surprising that the bamboos broke when they became a little rotten. Nor was this all. Occasionally, a large herd of wild buffaloes would make a charge up one side of the embankment and down the other. When meeting with the rod scarcely 4 feet from the ground, a few of these powerful beasts would be caught by the horns, and the Line become prostrated for miles along the ground. Since the re-construction of the Kookrahatty and Kedgeree Line, not a single interruption has occurred on it, up to the present hour.

## Cables.

7. On the North-West Lines, the first Cable, or submerged Telegraph crossing met below the River Kurumnasa, is that by means of which communication is maintained through the River Soane. This Cable, together with that across the River Burrakur, 186 miles further down the Line, has remained in good working order during the whole of the period to which this Report refers, proving that where Cables are allowed to remain undisturbed in the beds of Rivers, they are perfectly effective for the purpose required. The ends of both the Cables mentioned are brought into small Junction Houses, built of pukka masonry, where they are connected with the over-ground Lines. In the Junction Houses, and inserted between the over-ground Line and the Cable, lightning boxes, containing sheets of copper separated by paper, are so placed, that an excess of atmospheric electricity, conducted by the large iron Line wire, would be more likely to find its way to the earth than to traverse the thin copper wire in the Cable and risk its destruction. These lightning boxes are, however, very liable to get out of order, for, placed as they are, in a position where the atmosphere is generally damp, the paper separating the sheets of copper is apt to get damp also, and thus establish a contact between metals which must be insulated from each other, or communication is interrupted. In like manner, when the lightning box answers its legitimate purpose, and carries off superabundant electricity from the Line to the earth, it only does so by the destruction by the lightning of the interposed paper, thus placing the two plates in metallic contact and equally surely stopping communication. Of course, in the latter case, the Cable has escaped the action of an agent that would most probably have destroyed it, and it becomes only necessary for some person to go to the Junction and re-place the burnt paper. Still these occurrences

give annoyance, and add to the causes that tend to make Telegraphic Communication uncertain; render it advisable to use Cables only where they cannot possibly be done without. Several attempts have consequently been made to cross the Burrakur, the span of which is about 2,200 feet by Flying Lines; but although wires have been got across and remained intact for a short time, they have all invariably given way ultimately, and compelled us to depend upon the Cable, notwithstanding its drawbacks.

8. Next below the Burrakur submerged crossing is the Cable that connects Sulkea with Ruthtolla Ghât on either bank of the River Hooghly. This Cable, placed as it is in one of the most frequented parts of the River, is constantly liable to injury; for although above the usual anchorages, it is yet so near, that heavy Cargo Boats, laden with the produce of the Northern and Western Districts of Bengal, constantly pass the spot with their anchors dragging along the bed of the river, to enable them to drop quietly down to the exact place they may have to make. This jeopardizes the Telegraph Cable, and up to the beginning of the year 1855-56, two Cables had been destroyed in this manner. It therefore occurred to Sir William O'Shaughnessy, that a Cable formed of materials sufficiently massive to sink itself in the bed of the river would stand a good chance of escaping the dangers of this crossing; and sanction was obtained for the expenditure of Rupees 7,700-0-0 for the manufacture of a Cable of the Section shown in the margin, as noted in para. VII. of the Report referred to in the commencement of this paper. The manufacture of this Cable was a work of no small difficulty, since each ring had to be slipped on at one of the extremities and worked along the entire length singly, until the whole were strung. This necessarily made the manufacture a work of time and labor, and it was not till after five months spent in its construction, that it was finally laid down in its place on the 8th of November 1856. Both the Cables at the part of the river now referred to have remained in perfect order during the whole of the year 1856-57; the only inconvenience that has arisen at any time being on one occasion for about 4½ hours in September, when the paper in the lightning boxes became damp.

9. In the month of June 1856, the Cable crossing connecting Hooghly Point *vid* Hospital Point, with Kookrahatty, was destroyed by a large vessel that dropped down the river, with her anchor trailing along the bottom. This accident cut off the direct line of communication between Calcutta and Kedgeree; and as it was impossible at the time of its occurrence to repair the injury, recourse was had to the old Semaphore arrangement, assisted by a large Boat Establishment, as a temporary arrangement. It was, however, found, that the Boats, and the Semaphore combined, were very inadequate substitutes for the Electric Telegraph; for, except during day-light and fair and clear weather, the Semaphore was useless, and in very rough weather, it was often impossible for the boats to cross the river. On the breaking up of the monsoons of the season, the Telegraph Station at Mud Point, which had been closed for a while, owing to a scarcity of Signallers, was re-established; and the hire of two boats with their crews having been sanctioned for the Station, certain other arrangements, that will be understood by a reference to Appendix No. I. to this Report, were made with the view of reducing the inconvenience which had arisen from the Cable being disabled. It, however, turned out, that the Commanders of Opium Clippers from China would not avail themselves of the facilities offered for sending Messages ashore at Mud Point, notwithstanding the special means taken to inform them of the arrangements made, and the Commanders of other Vessels entering the Port preferred to send their particulars ashore in the Dâk Boats at Kedgeree, to taking the little extra trouble that would have been necessary for landing them at Mud Point, for more rapid transmission by the direct line to Calcutta. Thus it happened, that from the date on which the Cable between Hospital Point and Kookrahatty became useless, up to the end of the year under review, the whole of the correspondence that was usually transmitted *vid* Kedgeree had to be crossed over by Boats or signalled by Semaphore; and a delay almost invariably arose, that admitted of fast Steamers reaching Town, before the Messages they had sent on shore could be transmitted by Telegraph; and from this cause alone, a pecuniary loss resulted to this Department of nearly Rupees 300 per mensem, in addition to the disappointment felt by those who were anxiously looking for Telegraph Communications, and to the anomaly of an Electric Telegraph Line being in operation, that could not transmit Messages between its Terminal Stations quicker than Steamers could get over the distance.

10. The Tabulated Statement, marked II., which accompanies this Report, will afford almost all the further information that occurs to me as likely to be of any value regarding the Lines and Cables for the year now treated of. I would, however, wish to record that no kind of insulation was in use on any of the Lines during the rains of this season. The systems that had been applied having proved defective were removed by me as quickly as I was able to get the working parties to travel over the distance, and the arrangements had not been completed for introducing any better kind at that time. Still, as the Table marked II. will show, the Lines have worked far better, and with much fewer interruption than has been the case during any preceding year since the Telegraph has been established. I would also wish prominently to notice, that the whole of the interruptions to communications on the Calcutta and Raneegunge Line, between September 1856 and April 1857, both inclusive, with the one exception of that already referred to for four and a half hours, arose from the Line breaking whilst under repairs. Very much of the wire that has been sent to India is so brittle, that it is impossible to turn it into an eye for joining; and several Coils, after having been in use for many months, have had to be re-placed altogether, from the constant breakages that have occurred where they were inserted. Another cause of trouble has been the opening out of the welds

made in the wire at the Manufactories; but where the quality of the wire has been good, this has proved a very secondary evil.

11. In concluding this Section of my Report, I feel bound to notice prominently the valuable services of Messrs. Bailey, Seeb Chunder Nundy, and Curwen. The intelligence, energy, and zeal of these Officers it has already been my pleasing duty to bring to notice on several occasions,* and as I have to attribute much of the good working of the Bengal Circle to their earnest assistance, it has been a source of heartfelt pride and satisfaction to me to watch the advancement that each of them has achieved. Messrs. McIntyre and McKay have also done right good service during the period under review and, more especially the first, establishing their characters as first-rate Telegraph Artificers.

## Offices.

12. The very detailed Reports which I have forwarded during the year 1856-57, on the termination of different tours of inspection, so completely exhaust every point of interest connected with the Telegraph Stations in Bengal, that there is scarcely anything left for me now to remark upon, that has not already been treated of.

## Sherghotty.

13. At Sherghotty, the Telegraph Office has been continued in the same hired Bungalow, and has been kept up as near as possible to the same standard in every way, as was the case at the close of the preceding year. After the close of the rainy season of this year, and as the Bengal Lines became more improved, the necessity ceased for using this Office as a Repeating Station, and it subsided into a Station of observation, being occasionally used also for local purposes.

## Bagoda.

14. The Office at Bagoda has been constantly used for repeating the Messages between Calcutta and Benares. Occasionally, it has been found possible to work direct between the two last-named Stations; but no certainty existed that that could be kept up; and the disturbance to the needle indicator, owing to atmospheric electricity along the Lines that pass through the Rajmahal Hills, is so great, that it is, at times, absolutely impossible to work the instruments. This difficulty necessitates the use of much more powerful Batteries, and very much nearer Repeating Stations, than has been found requisite in other parts of the Country, where the Lines pass over level Districts; and although it is proved that there are no grounds for apprehending danger from the numerous and heavy discharges of electricity to which our Offices are peculiarly subject, those discharges are in themselves sufficiently disconcerting to the Signallers, and destructive to the Galvanometer Coils in use, to make work impossible at times for several hours. The Bagoda Station has been worked well during the whole of the year 1856-57, and given no grounds for complaint, except on a few occasions, when errors in transmitting Messages have been traced to carelessness on the part of some of the Signallers, and on two or three others when Messages have been delayed by over-sight. It has, however, been my duty to bring to your notice the extent to which the Signallers at the different Stations have at times

* No. 606, dated 29th August 1856, to Officiating Superintendent of Electric Telegraphs in India.
No. 788, dated 29th September 1856, to ditto ditto ditto.

been compelled to exert themselves, in order that the work of this Department should not suffer; and I beg to refer you to the 14th para. of my letter marginally noted, for the record of an instance of endurance and self-sacrifice that could not have been expected from young lads on low salaries.

No. 788, dated 29th September 1856, to Officiating Superintendent of Electric Telegraphs in India.

RANEEGUNGE.

15. In the month of October 1856, the Telegraph Office that had been opened at Munglepore, when the North-West Lines were first constructed, was removed to a terrace-roofed house built for this Department at Searcole, by the Executive Engineer of the 1st Division Grand Trunk Road, at a cost of Rupees 2,630-4-2. On the removal of the Office, its name was called the "Raneegunge Station," with a view to giving the public generally a better idea of its position, than the name of the village on the lands of which it is placed would have afforded. It is unfortunate that the house was not built close to the Railway Terminus, from which it is distant about 3 miles, as it would then have been far more convenient for local purposes than it is at present. As a Station of observation, it will probably be always necessary to keep up this Office, and the Returns of Cash Receipts for Messages during the last three months of the year now treated of prove that, even as a Transmitting Station, Raneegunge will probably pay its expenses.

CALCUTTA.

16. As was confidently expected, the Calcutta Signal Office, whilst controlled by Mr. Inspector Bailey, worked in a manner that left nothing to be desired. A very marked increase took place in the work of the Department, and towards the middle of the year, it became necessary for the Signallers to be in attendance night and day. Owing to the impossibility of transmitting the amount of correspondence by a single wire, and by the instruments in use, at the rate that the Messages were tendered for despatch, accumulations constantly took place at the Signal tables; and Sunday was regarded as an opportunity for clearing off those accumulations, since the Mercantile Community on that day scarcely ever tendered any Messages for despatch. Still so little delay took place, so few inaccuracies occurred, and the work of the Southern Line Offices was so efficiently controlled, that the Calcutta Office earned a character for good management, that it had never held previously; and I have always regarded it as most unfortunate that Mr. Bailey's health did not permit his continuing in Bengal.

17. For a short time after the departure of Mr. Bailey for the Punjab, the discipline that he had maintained in the Southern Division, and in the Calcutta Signal Office, sufficed to prevent any inconvenience being felt. This, however, gradually wore off, and it became necessary to send for Mr. W. Browne from Peshawur to take charge at Calcutta. The increasing business of the Department also necessitated the engagement of other and larger premises, and in the month of March 1857, the old Office in Hare Street was given up, and the one now occupied taken at a rent of Rupees 500 per mensem. With all the accommodation that the premises now occupied afford, they still prove very inadequate for the use of this Department. The Work-shops are necessarily in another building, which it was found impossible to get near to the Head Office, and the godown-room now available is altogether insufficient.

18. Of the Telegraph Stations on the river, or Southern Lines, the Reports submitted in my letter No. 1225, of date the 24th January 1857, affords the most complete information, and no recapitulation seems necessary in this place.

## Financial.

19. The accompanying annexures marked III. and IV. show an increase of the work done, and cash realized, in the Bengal Circle, for 1856-57, above that of the preceding year, to the extent of Rupees 24,402-8-0, or upwards of Rupees 2,000-0-0 per mensem. Those papers further indicate, that the increase is a steady and continuous one leading to the inference that the extent to which the Telegraph is likely to be used both by Government and the public will be limited only by the means available for the transmission of correspondence. Gratifying as this very evident fact is, it yet becomes a matter for serious consideration to what extent, and by what arrangements, those means can be increased; and though circumstances that have occurred subsequently to the period to which this Report refers, have all but suspended paid correspondence by Telegraph for the present, yet there can be but little doubt that once order is thoroughly re-established, the public will be more than ever eager to make use of the benefits that electricity affords for rapid communication, and the powers of this Department will be proportionally taxed.

## General.

20. It now only remains to touch upon a few general subjects, that do not fall under the heads already treated on, and which are yet deserving of a passing notice.

An arrangement has been made with the Post Office Authorities,* by which Signallers and other Officials connected with this Department are allowed to proceed by the Letter Dâk Cart or Parcel Van as may be necessary; and thus a great expense, which had once to be incurred for Dâk charges, is dispensed with almost entirely, and many abuses remedied.

21. The very anomalous connection of Mr. Butcher, the Post-master at Kedgeree, with this Department, has been terminated by the orders of Government, to the great simplifying of arrangements at that Station. In the whole of a considerable Indian experience, I have never met with an Officer who so thoroughly played the part of an obstructive, as Mr. Butcher has done; and regarding whose acts and omissions, it has been necessary to enter into such constant and lengthy correspondence.

22. The facilities that Calcutta affords for procuring the services of young men and lads born in this country, and possessing the education fitting them for the employment of Signallers, has rendered it necessary to make the Calcutta Signal Office a Training School for the greater part of the Lines forming the India system of Telegraph, in addition to providing for the local increase of establishment which circumstances have made necessary. In the margin is a note of the number of Signallers that have been sent from the Bengal Circle to other Deputy Superintendencies within the year 1856-57.

| | |
|---|---|
| Rangoon | 5 |
| N. W. Provinces | 6 |
| Madras | 1 |
| Patna Lines | 11 |

* No. 125, dated 4th June 1856, to Post-master General, Bengal, para. 3 of No. 180, dated 16th June 1856, to Officiating Superintendent of Electric Telegraph in India.

23. A system of taking Certificates from Signallers in the Form marked V. has also been introduced with a view to impressing on all the responsibility that rests upon them of regarding the information which they obtain in the course of their duties as entirely confidential. It is gratifying in the extreme to be able to record that, in a large body of a very miscellaneous kind, like the *employés* of the Telegraph Department, the number who have laid themselves open to the suspicion of divulging information has been very few. In only one case, that of Mr. Andrews,* has there been anything like sufficient grounds to arrive at the conclusion that confidence had been abused, although several attempts to tamper with the Signallers have come to light. The case of Sorabjee Dorabjee Patel,† who endeavored to bribe people in and out of the Department at Kedgeree, to ascertain for him the contents of certain Telegraphic correspondence, afforded grounds for a criminal prosecution, which resulted in the conviction of the offender. The only subject for regret in this matter is, that the Officer before whom the case was tried, did not think fit to award some more adequate punishment, than a simple fine of Rupees 50, for such a serious offence.

24. In concluding this Report, I have to record the destruction of the Bungalow used for the Barrackpore Telegraph Office by fire on the night of the 24th January 1857. Nearly the whole of the instruments, furniture, public and private property in the Bungalow was burnt. The cause of the fire could never be properly ascertained, but there is little doubt that the thatched roof was ignited by means of a lighted arrow shot from the neighbouring Sepoy Lines, and that by some of the evil-disposed Soldiers of the Native Infantry Regiments stationed at Barrackpore. This fire, together with others which happened in the Cantonments about the same period, was the commencement of the open mutiny and insurrection that has since done so much injury to the Telegraph and other Institutions which civilization has introduced in this country.

25. There are still several subjects of great interest connected with the working of the Telegraph in Bengal during the year 1856-57, of which I would be glad to treat, did time and opportunity permit; but as this paper has already exceeded the limits intended, it is impossible to notice all the points that the development of the system has raised. The transactions of the year have, however, set at rest all doubts as to the Electric Telegraph proving a success in this country, and there are now good grounds to anticipate that its working will be annually of more importance and interest.

GEO. O'DONNELL,
*Deputy Superintendent, Electric Telegraphs in Bengal.*

CALCUTTA;
*Electric Telegraph Office,*
*The 27th October* 1857.

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* No. 1357, dated 10th February 1857, to Officiating Superintendent of Electric Telegraphs in India.

† No. 1137, dated 2nd January 1857, to the Assistant in charge of Electric Telegraph at Kedgeree.

# APPENDIX I.

## ELECTRIC TELEGRAPH NOTICE.

To obviate the great delay that at present occurs in forwarding Telegraph Messages to Calcutta by the Kedgeree Line, which has been accidentally injured at the Hooghly crossing, temporary arrangements have been made for receiving despatches at the Mud Point Office, from Vessels proceeding up the River.

Whenever it may be desired to take advantage of these arrangements, it will be necessary to have the Rendezvous Flag hoisted where best seen, as the Vessel passes the Saugor Light House, immediately after the Signals giving the Ship's number have been answered from the Flag-staff. Intimation of this Signal having been observed, will be sent by Telegraph to Mud Point; and, if possible, a boat will be in readiness a little below Channel Creek to receive the Messages on the arrival of the Vessel there.

A charge of 8 annas for boat hire will be made for every Message thus transmitted.

It is recommended that the copies of Messages to be sent in the manner now described, be enclosed in an envelope and marked on the outside "Telegraph Despatches."

GEO. O'DONNELL,
*Offg. Depy. Superintendent, Electric Telegraphs in Bengal.*

CALCUTTA,
*The 29th January* 1857.

*TABULATED STATEMENT of the state of Communication on the*

| LINES. | Number and Duration of Interrup | | | |
|---|---|---|---|---|
| | May. | June. | July. | August. |
| Saugor and Mud Point ... ..... | No Register kept. | 22—71-5 | ..... | ..... |
| Mud Point and Diamond Harbour. | | | | |
| Diamond Harbour and Hooghly Point. | | | | |
| Diamond Harbour and Kedgeree | | 7—5-5—45-55—103-50 | 10-20—11—4-53 | 1-10 |
| Diamond Harbour and Calcutta .. | | ..... | 11½ | ..... |
| Hooghly Point and Atcheepore. | | | | |
| Atcheepore and Calcutta. | | | | |
| Calcutta and Barrackpore ... ... | | 31-5 | ..... | ..... |
| Calcutta and Raneegunge ..... | | 22-45 | ..... | ..... |
| Calcutta and Bagoda ... ... ... | | ..... | ..... | ..... |
| Calcutta and Burdwan. | | | | |
| Raneegunge and Bagoda ... ... | | 22-43—16-5 | ..... | 32-45—24-20—3-40 |
| Bagoda and Sherghotty ..... | | 6-30 | 16-5 | ..... |
| Bagoda and Benares ... ... | | ..... | ..... | ..... |
| Sherghotty and Benares ..... | | 11—3—15-10—3-30 | 4-55 | 12 |

CALCUTTA:
*Electric Telegraph Office,*
*The 27th October* 1857.

# DIX II.

*Electric Telegraph Lines in the Bengal Circle during the Year* 1856-57.

| TIONS IN HOURS DURING THE MONTHS OF | | | | | | | | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| September. | Oct. | November. | Dec. | Jan. | Feb. | March. | April. | |
| ..... | ... | ..... | ... | ... | No Interruptions. | ...... | No Interruptions. | Wire broke half way between the Stations. |
| ..... | ... | ..... | ... | ... | | ..... | | June—Line being in a state requiring constant supervision.<br>July—Bamboo supports broke.<br>August—Line fell down. |
| ..... | ... | ..... | ... | ... | | ..... | | Wire fell off posts. |
| ..... | ... | ..... | ... | ... | | ..... | | Line on the ground. |
| 8-20—4-35 | 28 | 11-40—14½ | ... | 27-35 | | 5-55—6½ | | June—Line off the posts.<br>September—First—Line on the ground.<br>Ditto—Second—Iron Line and Cable connection injured.<br>October—Carelessness in closing the Munglepore Office.<br>November—Line broke.<br>January—Ditto ditto.<br>March—Ditto ditto. |
| ..... | ... | ..... | 14 | ... | | ..... | | Line broke. |
| 35 | ... | ..... | 5-10 | ... | | ..... | | June—First—Cable connection meddled with.<br>Ditto—Second—Lightning box out.<br>August—First—Some palmyra trees broke.<br>Ditto—Second—The Cable houses at Barrackpore leaked.<br>September—Line in water a little above the Burrakur.<br>December—Line broke. |
| ..... | 5-10 | ..... | ... | ... | | ..... | | June—Line broke.<br>July—Flying Line broke across the River Booria.<br>October—Accident at a working party's camp. |
| ..... | ... | ..... | ... | ... | | 4-38 | | Line broke. |
| 40—18½ | ... | ..... | 5-25 | ... | | ..... | | June—Line being in a ricketty state.<br>August—By a working party shifting the Line.<br>September—Line on the ground.<br>December—Working party shifting the Line. |

GEO. O'DONNELL,
*Deputy Superintendent, Electric Telegraphs in Bengal.*

# APPEN

*STATEMENT of Collections and Pro-formâ Charges*

PAID

| | May. | June. | July. | August. | September. | October. |
|---|---|---|---|---|---|---|
| Calcutta ... ... ... ... | | | | | | |
| Barrackpore ... ... ..... | | | | | | |
| Atcheepore ... ... ... | | | | | | |
| Hooghly Point ... ..... | 8,204 13 0 | 5,866 8 0 | 6,028 3 9 | 7,753 6 0 | 5,427 12 0 | 6,350 4 9 |
| Diamond Harbour ... ... | | | | | | |
| Mud Point ... ... ..... | | | | | | |
| Kedgeree ... ... ... ... | | | | | | |
| Saugor ... ... ... ..... | | | | | | |
| Mungleporo ... ... ... ... | 44 4 0 | 18 4 0 | 44 0 0 | 23 0 0 | 23 4 0 | 54 12 0 |
| Bagoda ... ... ... ..... | 10 8 0 | 2 0 0 | 4 8 0 | 2 0 0 | 20 0 0 | 6 0 0 |
| Sherghotty ... ... ... ... | 22 8 0 | 31 0 0 | 15 8 0 | 11 8 0 | 30 0 0 | 23 8 0 |
| Total ... ... ..... | 8,282 1 0 | 5,917 12 0 | 6,092 3 9 | 7,789 14 0 | 5,501 0 0 | 6,434 8 9 |

SERVICE

| | | | | | | |
|---|---|---|---|---|---|---|
| Calcutta ... ... ... ... | | | | | | |
| Barrackpore ... ... ..... | | | | | | |
| Atcheepore ... ... ... | | | | | | |
| Hooghly Point ... ..... | 1,948 12 0 | 1,397 14 0 | 1,454 12 0 | 2,545 8 0 | 2,078 10 0 | 2,044 13 0 |
| Diamond Harbour ... ... | | | | | | |
| Mud Point ... ... ..... | | | | | | |
| Kedgeree ... ... ... ... | | | | | | |
| Saugor ... ... ... ..... | | | | | | |
| Mungleporo ... ... ... ... | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 |
| Bagoda ... ... ... ..... | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 2 4 0 | 0 0 0 |
| Sherghotty ... ... ... ... | 12 0 0 | 14 4 0 | 3 0 0 | 0 0 0 | 3 0 0 | 39 0 0 |
| Total ... ... ..... | 1,960 12 0 | 1,412 2 0 | 1,457 12 0 | 2,545 8 0 | 2,083 14 0 | 2,083 13 0 |
| Grand Total ... ... ... | 10,242 13 0 | 7,329 14 0 | 7,549 15 9 | 10,335 6 0 | 7,584 14 0 | 8,518 5 9 |

CALCUTTA;
*Electric Telegraph Office,*
*The 2nd October* 1857.

# DIX III.

*made in the Bengal Presidency during* 1856-57.

MESSAGES.

| November. | December. | January. | February. | March. | April. | TOTAL. |
|---|---|---|---|---|---|---|
| 7,057 10 0 | 8,847 2 3 | 9,673 8 9 | 9,020 9 6 | 8,866 7 0 | 10,027 0 0 | 9,3123 5 0 |
| 62 12 0 | 71 12 0 | 82 4 0 | 273 0 0 | 276 12 0 | 223 8 0 | 1,197 8 0 |
| 20 4 0 | 23 8 0 | 15 0 0 | 16 0 0 | 10 0 0 | 20 0 0 | 149 12 0 |
| 32 0 0 | 27 8 0 | 35 0 0 | 23 8 0 | 49 14 0 | 32 8 0 | 334 6 0 |
| 7,172 10 0 | 8,969 14 3 | 9,805 12 9 | 9,333 1 6 | 9,203 1 0 | 10,303 0 0 | 94,804 15 0 |

MESSAGES.

| | | | | | | |
|---|---|---|---|---|---|---|
| 2,543 2 0 | 3,271 8 0 | 4,267 8 0 | 3,899 8 0 | 3,791 10 0 | 3,942 2 0 | 33,185 11 0 |
| 0 0 0 | 0 0 0 | 0 0 0 | 6 0 0 | 0 0 0 | 0 0 0 | 6 0 0 |
| 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 2 4 0 |
| 0 0 0 | 2 4 0 | 10 8 0 | 4 8 0 | 6 0 0 | 6 12 0 | 101 4 0 |
| 2,543 2 0 | 3,273 12 0 | 4,278 0 0 | 3,910 0 0 | 3,797 10 0 | 3,948 14 0 | 33,295 3 0 |
| 9,715 12 0 | 12,243 10 3 | 14,083 12 9 | 13,243 1 6 | 13,000 11 0 | 14,251 14 0 | 1,28,100 2 0 |

GEO. O'DONNELL,
*Deputy Superintendent, Electric Telegraphs in Bengal.*

# APPENDIX IV.

*STATEMENT showing the Amount of Collections and Pro-formâ Charges during the Official Years* 1855-56 *and* 1856-57, *exhibiting the Increase or Decrease during the last-mentioned Year.*

| | 1855-56. Private. | 1856-57. Private. | Increase. | Decrease. | 1855-56. Public. | 1856-57. Public. | Increase. | Decrease. |
|---|---|---|---|---|---|---|---|---|
| May ... ... ... ..... | 3,146 12 0 | 8,282 1 0 | 5,135 5 0 | 0 0 0 | 865 8 0 | 1,960 12 0 | 1,095 4 0 | 0 0 0 |
| June ... ... ... ... ... | 4,596 0 0 | 5,917 12 0 | 1,321 12 0 | 0 0 0 | 822 8 0 | 1,412 2 0 | 589 10 0 | 0 0 0 |
| July ... ... ... ..... | 4,838 4 0 | 6,092 3 9 | 1,253 15 9 | 0 0 0 | 1,851 0 0 | 1,457 12 0 | 0 0 0 | 393 4 0 |
| August ... ... ... ... | 5,971 12 0 | 7,789 14 0 | 1,818 2 0 | 0 0 0 | 2,110 12 0 | 2,545 8 0 | 434 12 0 | 0 0 0 |
| September ... ... ..... | 7,795 8 0 | 5,501 0 0 | 0 0 0 | 2,294 8 0 | 1,089 0 0 | 2,083 14 0 | 994 14 4 | 0 0 0 |
| October ... ... ... ... | 7,144 6 0 | 6,434 8 9 | 0 0 0 | 709 13 3 | 1,161 0 0 | 2,083 13 0 | 922 13 0 | 0 0 0 |
| November ... ... ..... | 7,295 4 0 | 7,172 10 0 | 0 0 0 | 122 10 0 | 1,810 4 0 | 2,543 2 0 | 732 14 0 | 0 0 0 |
| December ... ... ... ... | 8,297 2 0 | 8,969 14 3 | 672 12 3 | 0 0 0 | 2,188 4 0 | 3,273 12 0 | 1,085 8 0 | 0 0 0 |
| January ... ... ... ..... | 7,939 5 0 | 9,805 12 9 | 1,866 7 9 | 0 0 0 | 3,322 2 0 | 4,278 0 0 | 955 14 0 | 0 0 0 |
| February ... ... ... ... | 8,154 13 9 | 9,333 1 6 | 1,178 3 9 | 0 0 0 | 2,672 0 0 | 3,910 0 0 | 1,238 0 0 | 0 0 0 |
| March ... ... ... ..... | 7,692 12 9 | 9,203 1 0 | 1,510 4 3 | 0 0 0 | 2,890 8 0 | 3,797 10 0 | 907 2 0 | 0 0 0 |
| April ... ... ... ... ... | 8,271 10 6 | 10,303 0 0 | 2,031 5 6 | 0 0 0 | 1,771 2 0 | 3,948 14 0 | 2,177 12 0 | 0 0 0 |
| Co.'s Rs. ..... | 81,143 10 0 | 94,804 15 0 | 16,788 4 3 | 3,126 15 3 | 22,554 0 0 | 33,295 3 0 | 11,134 7 0 | 393 4 0 |

| | |
|---|---|
| Total Increase ... ... ... ... ... ... ... ..... | 27,922 11 3 |
| Total Deduct Decrease ... ... ... ... ... ... ... | 3,520 3 3 |
| Nett Increase, Company's Rupees ... ... ... ..... | 24,402 8 0 |

CALCUTTA;
*Electric Telegraph Office,*
*The 2nd October* 1857.

GEO. O'DONNELL,
*Deputy Superintendent, Electric Telegraphs in Bengal.*

# APPENDIX V.

FORM.

I, , employed in the Electric Telegraph Department of India, hereby acknowledge that I am acquainted with the purport of Clause 2, Section XXI. of the "Rules for the transmission of Messages," and of the Circular Office Order No. 24, and that any violation of secrecy on my part will render me liable to due punishment under the provisions of Act No. XXXIV. of 1854.

*Dated* 185

Witnessed

# HYDERABAD AND NAGPORE.

## REPORTS ON THE PROGRESS MADE IN THE CONSTRUCTION OF THE ELECTRIC TELEGRAPH LINE IN CENTRAL INDIA, UP TO 30TH JUNE 1857.

FROM

MR. W. W. MAYES,
*Deputy Superintendent, Electric Telegraphs, Central India,*

TO

LIEUTENANT P. STEWART,
*Officiating Chief Superintendent, Electric Telegraphs in India.*

SIR,

IN compliance with your instructions, I have the honor tc submit the following Report on the construction of Telegraph Lines in Central India, and the progress it is making towards being completed up to the present date.

The Line for this Circle commenced a little to the West of the old Telegraph Office at Bellary, the position of which is about three-quarters of a mile South-west of the Fort of Bellary, and at the outskirt of the Cantonment. This Office being found inconvenient both as regards its site and accommodation, for the Office Establishment, it was therefore removed to a distance of 1,330 yards to the North-east, to a more central position, and close to the walls of the Fort.

From the old to the new Office, a double Line is carried on stone pillars, with a solid cap stone, into which two holes are pumped and two screw bolts run in with lead inverted; to fasten this down is a piece of teak-wood 22 inches long by 3½ square; inserted into this are two turned pieces of wood, which carry two of the ordinary galvanized iron caps put on with rosin and sand in the usual way; but instead of the oak bracket, a neat round one fitting on the top has been substituted; the wire let into a small groove at the top of this, with a second turned top fitted on similar to the drawing I gave you at Madras. This plan gives an additional height to the pillars of about 18 inches, thus carrying the two Lines in an horizontal position, one with the other, at 18 inches apart, and well insulated one from the other.

From the Electric Telegraph Office, the Line starts off, passing between two hills, taking a direct route to the Village of Mokah. From Bellary to Kurnool, a distance of 96 miles, the Line is kept within sight of the road, with the exception of two portions, each of about 2 miles in extent.

The whole of this Section has been given to one Contractor, at Rupees 18 per pillar; these were to have a foundation of 4 feet in depth and 3 feet square; the pillar itself is to be 30 inches square at the spring from the ground, and tapered off to 20 inches at the top.

The nature of the soil in general through this Section is of such a light description, that the foundation had to be much deeper in many places, varying from 4 and even as far as 13 feet, which will raise the price of these pillars to about Rupees 20 each on an average. About three-fourths of these pillars are built entirely of good burnt stones, and the other one-fourth of good burnt bricks; the workmanship and materials in general are all very good, and I think when finished, that this Line will be one of the most substantial ones in India. On the 30th June there remained to be built forty pillars in this Section, which I expect will be completed by the 15th of the present month, when the contracts and accounts for this Line will be closed.

The Line enters the Fort of Kurnool on the left of the North gate, and crosses over the Parade Ground and over low houses to the Office, which is situated near the East face of the Fort and near to the Tumbudrah River. The wire is supported through the Town on good wooden posts. From the Office the Line passes to the Ramparts, where the wire is fastened to a large Tamarind Tree, which makes a fine post (after being lopped of all its branches) for a longer span of the River.

The Line from the East side of the Tumbudrah River takes an East by North direction over deep black cotton soil to the right of the village of Maunmungal. On the North banks of the Kistnah, the distance by Line is 15 miles, of which three pillars remain to be built; the pillars are the same in every respect as those in the Bellary District, and are built at a cost of Rupees 16 each.

From the East bank of the Kistnah the Line still keeps the same direction, passing by the villages of Venketpoorum, Pebber, and Maulapelly; the distance is about 18 miles; the nature of the soil throughout is variable, the first few miles being of black cotton soil; then passing on for a couple of miles over low swampy ground, and for a few miles more over good hard murrum and rock, passing the Town of Venketpoorum, from which place to Maulapelly two-thirds of the ground is low swampy, with paddy fields. This is a separate contract, and also the last Section for which Contractors could be procured for.

There are yet 150 pillars to be built in this Section; these are the same as those in the other Section, with the exception of the tops, which, instead of being a solid cap stone to carry the wire on a stone of 2 feet long, 8 inches wide, and from 4 to 6 inches thick, with a dove-tail groove cut at the top to receive the line, is one inserted 18 inches into the top of the pillar, 6 inches remaining above the pillar; stone of a sufficient size not being procurable for a solid top stone. In this Section the cost of these pillars are Rupees 15 each.

The contract from Maulapelly to Secunderabad has been given to five different parties, and the whole of the pillars are of the same dimensions as the last; they are built of good burnt bricks; the contract price for these pillars varies from 16 Rupees 10 annas to 17 Rupees 8 annas Soogoor, the whole of which are now completed, and have been inspected by myself. Wherever I found a pillar built badly, and bad materials used, I had it pulled down and re-constructed.

Mr. Jennings had the superintendence of this Section, and looked remarkably well after the Contractors.

The top stones throughout the Section are the same as the last.

The Line from Maulapelly passes over some very rugged hills, with rocky and hard murrum ground for the first 7 miles, when it is crossed over low swampy ground for about 2 miles, when again it breaks on good hard ground, passing through a thick jungle of custard-apple trees to the Town of Cotah Cotah, from which place to Uttacal, a distance of 9 miles and 4 furlongs, the Line for the first mile passes through paddy fields; but the soil is of stiff clay, and good foundation got within 4 feet of the surface; the remaining distance is over good red murrum ground and through very thick jungle. From this to Jannumpett, 9 miles and 6 furlongs, the Line is crossed over high ground and through much jungle. From this to Judderchullah, a distance of 15 miles and 3 furlongs by the route, the pillars lead through dense jungle all the way, where good rock and murrum foundations are got. The distance by Line is not more than 12 miles.

From this to Shumpsherabad, a distance of 40 miles and 3 furlongs, the Line takes a direct route, passing close by the towns of Ballanugger, Furrucknugger, Palmacul to Shumpsherabad, which Towns it leaves to the right, passing through a good deal of dense jungle, which has been cut clear away from the Line. The Line in general through this distance is on good hard red soil. The Line from Shumpsherabad for the first 7 miles passes through a low dense jungle, but over good hard soil, when it enters a low marshy tope of palmyras, and paddy land, which it crosses over for about 3 miles, when it breaks out on to the plain near Booran Saib's Durgah, which it passes to the right, and thus leaves the City well on the left, between the Durgah and Awoosey River. All the roads are crossed by heavy compound posts 36 feet clear of the ground, and at another road crossing near the Bridge, the wire is laid under ground, with leaden covered gutta-percha wire, for about 180 yards, when a very sharp angle prevented the use of a tall post. The wire is crossed at the side of the Bridge by a span of 300 yards, on two good pillars of 24 feet in height, with bases of 4 feet tapering off to 20 inches at the tops. From the Bridge, the wire is crossed at a right angle, from which direction, and along the wall of the Assistant Resident's Garden, neat brick pillars, about 10 feet high, are built on the battlement of the wall. In this way it is carried to the far end of the Riding School, where it strikes off from a strong angle post, and passes through the Resident's compound, leaving the Residency on the right at each road. Here the wire is carried on compound posts.

From the Residency it takes a direct Line on the right hand side of the road leading to Secunderabad, and at a quarter of a mile from the Residency Gate, it enters the Hyderabad Office. From the Hyderabad Office, the Line takes the right hand side of the road, until it reaches the Gun Foundry, when it keeps a direct Line, crossing over about 2 miles of low paddy ground, from whence it again breaks into the road at the Native Regiment Lines, which it passes and goes down on the right hand side of James's Bazar; then turns off by a small lane, and enters by the back way into the house known here as Colonel Oliphant's in which the Office of Secunderabad is kept.

I have the honor to be,
SIR,
Your most obedient Servant,

W. MAYES,
*Deputy Superintendent, Electric Telegraphs, Central India.*

## REPORT ON THE RIVERS OVER WHICH THE ELECTRIC TELEGRAPH LINE PASSES.

THE first of these Rivers is the Huggery at Mokah, which is about 800 yards wide; the North bank is of black soil, that of the East of light sand, which is chiefly blown up from the bed of the River in the dry season. The bed of this River is deeply sandy; in several places I have bored to a depth of 24 feet without finding any kind of solid earth.

This River is a mere stream in the dry season, but with a few days'rain on the Western Ghauts, it rises very rapidly, and when the rains fall sudden and heavy, it makes the River very dangerous to cross. At this time, from the first appearance of the rise, for twenty-four hours, the natives will not cross with their boats for fear of being overtaken with rollers, which at times come down, swamping every thing before it; but if there is no appearance of this during this period, and the river rises regular, the natives will then cross.

The greatest rise of this River without overflowing the country all round is 13 feet. The banks are invariably overflown every season.

The River is crossed during this season in the following manner. On each bank of the River a good strong post is inserted of from 8 to 10 inches square and 24 feet high, and well stayed. The River is broken into three spans by two compound masts 37 feet in height; each span is about 266 yards; these masts are secured as follows, two baskets were made up of good strong split bamboos, and strengthened by interwattleing No. 1 wire within the same; they are 6 feet in height and 6 in diameter; these are sunk into the sand 7 feet deep, and the masts raised on them; they are then filled up with stones, gravel, and chunam. The masts are afterwards stayed by three stays from the centre, one down the stream and two up, spreading out to about 90°. Three other stays are put on within 3 feet of the top of the masts; two of which go up stream, and the third down, in a similar manner to the others; but to a great distance these are fastened to the largest blocks of granite procurable, and well sunk in the sand, when they are again kept in their position, with some tons of granite stones. The staying are made up similar to the wire ropes; the lower ones are of six strands of No. 8 wire, the upper one is of three strands; these were made up in the Arsenal at Secunderabad by a European rope-maker.

The second River is the Haundry, about a mile on the West of the village of Cuddemore; this River is about 200 yards wide, with a sandy bed; the banks are of black cotton soil. This has been crossed with two good strong posts well stayed; these at first were put too close to the banks; and on the first rise of the River during this season, the banks yielded, and the posts were carried away, which caused an interruption for five days: this has been remedied by placing others further back and well staying them. This River is crossed a second time about 6 miles to the West of Kurnool, at which place it is crossed with the ordinary pillars.

The next is the Toombuddra River, which washes the Eastern wall of the Town of Kurnool. This River is likewise crossed temporarily to meet the present Monsoons; it

was delayed by your orders for the plans of pillars which were to be sent from Calcutta, and which I have not received as yet.

I beg to enclose a sketch of the proposed pillars, for both this and the Kistnah Rivers; if they should meet your views, kindly inform me; so that the work may be commenced with as soon as the Rivers fall after the Monsoons. The Toombuddra River is crossed in three spans of 660, 770, and 400 feet; the wire on the Kurnool side is attached to an old tamarind-tree lopped for the purpose, and about 28 feet above the highest water mark; two compound masts, similar to those described for the Huggery River, are stayed in the same manner with wire ropes. The first mast is erected on the foundation of an old Tower, a basement being built round the mast of good cut stone and chunam, 5 feet high and 5 feet in diameter; the second is built on a rugged rock with a similar basement, and stayed in the same manner. On the East bank there is a good pillar, 25 feet high and 4 feet square at the base, and during the greatest rise of the flood, this pillar will not be above 4 feet in water, owing to the bank being low, and the river often overflowing to a considerable distance inland.

The Kistnah is the next River; this is 980 yards wide where the Line crosses; the banks are high and rocky, and the bed is solid rock, covered in several places with drift-sand. This is crossed in the same way as the Toombuddra, with compound masts 37 feet high and stayed with six wire ropes, most of which are fastened to iron belaying pins set in the rock by jumping holes of about 9 or 10 inches in depth, and run in with lead. The respective spans of this River are about 400, 254, and 826 yards.

There are no other Rivers which call for any particular Report on the Line to Hyderabad.

W. MAYES,
*Deputy Superintendent, Electric Telegraphs, Central India.*

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## REPORT ON THE ELECTRIC TELEGRAPH LINE FROM SECUNDERABAD TO WURRUNGUL.

THE Line along this Section commences from the Electric Telegraph Office at Secunderabad, passing through the Cantonment in a due Easterly direction as far as the European Regiment Barracks, from whence it strikes off by a right angle in a North-east direction, passing between the villages of Mulcajgerry and Lallagooduim, over a low range of hills and cultivated wet lands towards Cherloopully, which village it leaves to the left. This village is 8½ miles from Secunderabad, and the nature of the soil generally is red stiff earth, intermixed largely with murrum. A good portion of the surrounding country is scattered thickly with heaps of boulders and low ranges of hills. The Line passes from Cherloopully to Rampully, a distance of 2 miles 3 furlongs, over the same undulating ground. From Lallagooduim to this latter village (Rampully,) the country gradually assumes a low jungly appearance, which increases in denseness and height as it approaches the Rampully range of hills. From Rampully the Line continues to pass on towards

Royroypett, a distance of 6½ miles, over highly undulating hilly country and dense close jungle. The soil over this track of land is generally red stiff earth and murrum, which changes as it nears the villages to sandy loam and clay. The Line continues from Royroypett (which it leaves to the right) towards Kondah Mudgoo, about 5 miles distance, passing through the heart of a dense jungle and over an undulating rocky country, with very little arable land, which is occasionally met with in small patches near the several hamlets and villages. From Kondah Mudgoo the Line is continued to Bhonagheer, passing the village of Goodoor, which it leaves to the right. The nature of the country is of the same character as the ground already passed over, but the jungle denser and closer. Bhonagheer is a large populous Mahomedan town, about 9 miles from Kondah Mudgoo. The Line passes to the South-west of Bhonagheer to Raeegheer, a distance of 6 miles, through a valley, the country on the right and left being hemmed in by a low range of hills, which are covered to the summit with jungle. The soil throughout this portion of the ground is chiefly red and white earth, intermixed with murrum, and occasionally very rocky, excepting near the villages, when it becomes more loamy and clayey, and advantage is taken by the Ryots of converting the same into wet lands. The Line continues from Raeegheer to Ramanjeepett, a distance of 5½ miles, passing for the first time over light black cotton soil and low scattered jungle for several miles. As the country nears Ramanjeepett, the character of the soil becomes changed to red stiff earth, over a widely scattered bed of good limestone and occasional granite, the country again assuming a wild jungly appearance. From Ramanjeepett the Line is carried for several miles through scattered high jungle, but from Allairoo, through the heart of a dense close high jungle, to Pempintee, a distance of 11½ miles. The nature of the soil throughout this portion of the country is red stiff earth generally, but black cotton is occasionally met with near the immense palmyra topes through which the Line was carried. From Pempintee the Line is continued in a North-east direction towards Neddikondah, a distance of 9 miles 3 furlongs, which it passes to the right. The soil and general nature of the country are of the same character as the ground last passed over, the latter being more undulating and less hilly. The Line is continued from Neddikondah to Chagul, between a range of low hills ; this village is about 10 miles 7 furlongs from Neddikondah. The soil throughout this track of land is very varying, the Line occasionally crossing over red stiff earth, sandy loam, and black cotton. The country throughout is generally jungly ; open ground is only met with where the black cotton soil predominates. From Chagul the Line continues to pass through dense high jungle and highly undulating ground and low hills to Murrykondah, a distance of about 10 miles. The general appearance of the country and soil throughout are of the same nature and character, but the jungle is denser, closer, and higher. From Murrykondah the Line is continued for about 3 miles between a low range of hills and scattered jungle towards Wurrungul, a distance of 7 miles. Beyond the hills the Line passes through rather open country and over black cotton soil, till it reaches to within 2 miles of Wurrungul. The country here assumes one vast open plain, covered with neglected wet lands for several miles in every direction. The Line is carried over these till it enters and passes through the Nizam's Cantonment at Wurrungul.

A map of the survey and country over which the Electric Telegraph Line was carried will be forwarded as soon as the fair copy has been fully prepared and completed.

W. MAYES,
*Deputy Superintendent, Electric Telegraphs, Central India.*

## MR. P. GATLAN'S REPORT ON THE LINE FROM WURRUNGUL TO CHANDA.

1. I BEG respectfully to report my arrival here at 7 A. M. this-day. The very great heat of the weather, and the want of even a track for a considerable portion of the distance over which I have come, owing to which I was obliged to make day marches, and been consequently exposed to the heat of the sun, has tended materially to retard my progress.

2. I may here state, that no such place as "Karlingaum," from whence you ordered a careful Diary to be kept, is to be found. Annamcoondah (the Military Cantonment of Wurrungul,) and 4 miles South of that Village, which I left on the 23rd ultimo, I have therefore chosen from which to commence my journal.

3. From this Station, through Wurrungul to Ragaul (12 miles,) there is but little jungle, and few difficulties are met with; country generally barren and rocky; road indifferent.

4. From Ragaul to Percaul the jungle is much thicker for these 10 miles; high rocks; road bad; slight cultivation near last Village.

5. From Percaul to Cotapelly (20 miles) thick forest is passed through, until within a mile of Cotapelly, when some clearance for cultivation is observable: this is a large and well-populated village.

6. From Cotapelly to Peddapoor (14 miles) nothing is to be found on all sides, but thick forest jungle.

7. From Peddapoor to Cumblapoor (12 miles) country of same character as last day's march; very little dry cultivation; population very insignificant and wretched-looking.

8. From Cumblapoor to Moolgopelly (12 miles) the same throughout as yesterday; scarcely any population.

9. From Moolgopelly to Madeapoor (16 miles) a most difficult rocky road; forest very thick; trees very large, but none suited for Telegraph purposes; large population at Madeapoor; extensive cultivation on bank of River for some miles. I halted at Madeapoor two days, in order to make enquiries respecting timber, carriage for stores, &c., &c., and to rest my cattle. Teak, such as you require, is procurable in large quantities from the forests at Aharee and Bopalputum, the only two places at which such timber is now being cut. From six to eight months' notice will, I am informed, be requisite to ensure its delivery at Madeapoor, or at such other points on the Wyn Gunga or Godavery Rivers as may be selected. All particulars as to cost of posts, carriage to Station, &c., can be best obtained from Mr. Palmer, Agent for Timber at Madeapoor, who was at Bopalputum forest when I passed through Madeapoor, or from the Sowcar at Hyderabad, to whom these forests are rented from the Nizam's Government.

10. At many petty Villages between the Godavery and Wurrungul, large quantities of teak are deposited, which have come by River from the above-named forests, and are awaiting

transmission to Hyderabad; the time taken to convey two logs each on the little carts used for the purpose from Madeapoor to Hyderabad being about seventy-five or eighty days. All the teak timber which I noticed was much too short for posts, averaging only about 16 feet in length.

11. The male population, which appears to be fast dying out throughout this portion of the country for many miles around Madeapoor, obtain ready employment during the entire year in felling teak timber, floating it down the Wyn Gunga from Aheree, and carting it from the jungle to Depôts, or to Hyderabad.

12. On the 2nd instant, I left Madeapoor, and crossed the Godavery, about 4 miles North-West of that village, to the little deserted miserable place called Numchecooda, opposite to Kallaisarann on the other side of the River. The Godavery is here, I should think, fully a mile wide, and in the wet season I have no doubt swells much; now, very little water, and large patches of cultivation have been trenched off for the growth of Jowarree in many parts of the River bed, where the sand has not drifted largely and impeded cultivation. Owing to the very heavy sand, and the steep and rugged banks of the River, ten hours were occupied under a broiling sun in performing this short distance, only 6 miles.

13. From Munhecooada to Cota (14 miles) only a mere bridle track, through dense forest, can be found. At Cota I experienced much kindness from Mr. Wall, who has had a large party for some time at work boring for coal on the edge of the Wyn Gunga, by orders of Government. This gentleman has recently arrived from England, to open up the mineral wealth of the Rivers in the Madras Presidency; his efforts for so far at the Godavery have been wholly unsuccessful, although when I left Cota his party had sunk for coal a depth of nearly 200 feet; he has elephants for his own use, and camels for the European Sappers and others who accompany him, with a large boat with foot paddles, in which latter he principally travels up and down the Rivers, thus avoiding the confined and dangerous forest tracks in the prosecution of his scientific researches. All his Coolies were provided from Chenoor, none being available nearer. He intended stopping work and returning himself to Madras, and his party to Dowlaisaram, about the 20th instant.

14. From Bijoorpilly to Jweatapoor (16 miles) track wretchedly bad; very thick forest; four dangerous ghauts crossed with a wide rocky tributary stream.

15. From Jweatapoor to Dewulmurree (10 miles) very bad road; thick forest; slight cultivation along river bank; scanty and miserable population.

16. From Dewulmurree to Aharee (99 miles) road through thick forest; several important tributaries crossed; extensive clearance near latter village, which is large, but all inhabitants nearly employed in the teak forest (4 miles) East of village. Here I met with Dr. Jordan, who has been exploring the forests and jungles in the Nizam's and Nagpoor Territories by orders of Government, with a view to ascertain the value of the timber, nature of soil, products, &c., and to report on those portions which it might be deemed most desirable to clear for cultivation.

17. From Aharee to Bhoree (10 miles) thick forest and jungle; road bad; very large tributary crossed 4 miles South of Bhoree; very little clearance for cultivation; scanty and miserable population.

18. From Bhoree to Koongara (14 miles) thick forest jungle; road better; good clearance for cultivation; rich black cotton soil near latter village.

19. Koongara to Tullodee (10 miles) through thick forest to Ashtee River crossed here, too deep and rocky to cross at Koongara; about 500 yards wide; very rocky irregular bed; bank very precipitous from River to Tullodee; country clear and level; black cotton soil throughout; some cotton cultivation.

20. From Tullodee to Karinja (14 miles) the road for the first few miles is good; country clear, then very thick and high forest; is traversed to within a short distance of Karinja, when the country is again open and cotton is rather largely cultivated.

21. From Karinja to Kotaree (14 miles), except near some small intervening villages, the road lies through thick forest jungle.

22. Kotaree to Balarpoor (12 miles) much forest and dense jungle is passed through for the first 5 miles, when a large tributary is crossed; bed sandy; banks precipitous. The country now becomes clear for some distance, and large tracts of cotton are passed through.

23. A European gentleman has purchased the large forest at Ballarpoor, under the walls of which the Wurdah River flows, and it is being converted into extensive stores for cotton. He has also purchased a very large track of land from Government extending towards Chanda, which he has thoroughly cleared for the growth of cotton. He has built a handsome Bungalow and Offices close to the Fort, with some fine boats for the transport of cotton to Masulipatam. Already he has expended nearly £5,000, and seems very sanguine of success.

24. From Ballarpoor to Chunda (8 miles) country clear and road good for first 6 miles, where very thick jungle is entered, through which the road tortuously winds till close to Chanda, a very large and prettily situated city, in the midst of beautiful mango topes, and surrounded by a very fine wall. On passing through the city, however, to reach the Military Lines, near to which my Camp is pitched, I was disagreeably surprised to notice the squalid misery and want of cleanliness observable at every step.

25. The whole distance nearly from Wurrungul to Chanda appears almost impracticable for a Telegraph Line, unless the clearance of the forests and jungles be forthwith commenced, and this must occupy a long time and involve a very large outlay.

26. It is my duty to state that I cannot think it possible for the Contractor from Secunderabad to Chanda to fulfil his engagement, owing to the want of water for many miles, and the difficulty of providing materials and hands in many of the remote localities through which the Line is intended to run.

27. The pillars, if of the same height as the Bellary and Hyderabad ones, will not be high enough to clear over the jungle timber.

28. The conservancy of the Line, after the wire has been run out, cannot be looked after in the usual way, as no native ever travels upon those dangerous tracks alone; 'even from village to village, you cannot induce a guide to accompany you, without a companion to see him safely home next day.

Annumcoonda.
Cotapelly.
Madeapoor.
Cotah.
Bijoorpilly.
Incatapoor.
Aharee.
Koongara.
Tullodee.
Karinja.
Kotaree.
Bullarpoor.
Chanda.

I think the most safe and convenient places to select for Store Depôts are those named in the margin. I have chosen these villages chiefly because they are most important and most likely to afford carriage (small carts) for the final distribution of stores along the Line when required.

(True Copy)

W. MAYES,
*Deputy Superintendent, Electric Telegraphs, Central India.*

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## PROGRESS OF THE LINE FROM SECUNDERABAD TOWARDS MIRZAPOOR.

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THE pillars are built for the first 45 miles towards Wurrungul, and the wire suspended for 20 miles (this quantity being all the wire on hand at present), and the Line surveyed for 20 miles beyond Wurrungul.

Arrangements are being made for timber from Mahdeeporum to Chanda.

From Chanda, timber for 30 miles has already been put up on the Nagpore Line by Mr. Gartlan, who is now further collecting timber from Chanda to Tullodee, a large village a short distance from the banks of the Wyn Gunga. Mr. Grinnol also has been instructed to procure timber, and to commence doing so from the place where Mr. Gartlan's range ceases, (on the North side of Chanda,) and to have the same conveyed towards Nagpore, so as to meet the Contractor, who has commenced building his pillars on this Line from Kamptee, and thus avoid all delay in getting up the Line to Nagpore on the arrival of the wire up the Godavery. From Nagpoor to Mirzapoor, timber has already been procured and distributed in some of the Sections by the Assistant Commissioner, but owing to the unsettled state of the Saugor Districts at present, a stop has in consequence been put to all work there. None of the timber as reported to be procured by Mr. Muller has been yet received. Mr. Munden is in the Chunar Hospital, having been shot through both legs by the Mutineers at Mirzapoor.

Mr. Fell appears to be still at Mirzapoor.

1,388 Coils of No. 1 wire has arrived at Coringee, and I have written to Captain Rundall, the Civil Engineer in charge of the Godavery Works, to have the same sent to the different points of the River most convenient for transmitting the same along the Line, if possible; so that we may be able to get it distributed as soon as the Monsoons are closed for the season, until which time it will be impracticable to distribute any great quantity on account of the rivers and bad roads.

As no zinc had arrived with the wires, twisted joints must be made to answer the purpose, until a supply is received.

W. MAYES,
*Deputy Superintendent, Electric Telegraphs, Central India.*

*TOTAL COST of the Telegraph Line in Central India, including Value of Materials, Stores remaining in hand, &c.*

| | | | | | | |
|---|---|---|---|---|---|---|
| To Sum advanced by Government to the Deputy Superintendent up to 30th June 1857 .. .... .... .... .... .... | | Rs. | | | 1,08,000 | 0 0 |
| Amount of Stores received from the Bombay Presidency, including Contingent Expenses, &c. .... .... .... .... | | „ | | | 21,563 | 13 10 |
| Total .... .... | | Rs. | | | 1,29,563 | 13 10 |
| DEDUCT AS FOLLOWS : | | | | | | |
| Amount of Cash advanced to the Contractors for erecting the Line Posts on the Wurrungul and Nagpoor Circle .... .... .... .... Rs. | 20,358 | 12 | 4 | | | |
| To Cost incurred on account of the Construction Establishment up to 30th June 1857 .. .... „ | 3,484 | 3 | 4 | | | |
| To Stores expended .... .... .... .... „ | 1,543 | 8 | 0 | | | |
| To Stores remaining on hand .... .... .... „ | 936 | 0 | 0 | | | |
| To Balance of Cash in the Nagpore Treasury .... „ | 9,000 | 0 | 0 | | | |
| Total .... .... .... .... „ | 35,822 | 7 | 8 | | | |
| | | | | | 35,822 | 7 8 |
| | | | | | 93,741 | 6 2 |
| To Amount required for settling with the Contractors for completing the River Crossings, &c., and to Pay of Construction Establishment up to October next .... .... .... .... Rs. | 17,642 | 0 | 0 | | | |
| To Stores received from the Arsenals, consisting of Tents, Tools, &c., inclusive of Costs for Bills not yet received from the Government Authorities .... .... .... .... .... „ | 5,000 | 0 | 0 | | | |
| Total .. .... .... .... „ | 22,642 | 0 | 0 | | | |
| | | | | | 22,642 | 0 0 |
| | | | | | 1,16,383 | 6 2 |
| DEDUCT AS FOLLOWS : | | | | | | |
| On account of Working Establishment for the Months of April, May, and June 1857 .... Rs. | 1,756 | 3 | 10 | | | |
| | | | | | 1,756 | 3 10 |
| Total Cost of Permanent Line from Bellary to Secunderabad, a distance of 231 Miles ..... Rs. | ..... | | | | 1,14,627 | 2 4 |

*N. B.*—It will be observed by the above Account, that an average sum of Rupees 496 will be expended per mile of the Line. Even had the outlay been greater, it certainly would not have exceeded Rupees 500 per mile, which, considering the heavy outlay for carriage of Stores, most of which had to be brought from Bombay, &c., I consider that this Line will be one of the cheapest yet constructed in a permanent manner in India.

W. MAYES,

*Deputy Superintendent, Electric Telegraphs, Central India.*

LIST OF ESTABLISHMENT, NAMES OF PERSONS, AND SALARIES.

*Permanent Establishment appointed with the sanction or under the instructions of the Chief Superintendent.*

ACTING 2ND CLASS INSPECTOR.

| | | | | |
|---|---|---|---|---|
| Mr. F. Featherston .. .. .. .. .... | Salary | 200 | 0 | 0 |

ACTING 3RD CLASS INSPECTORS.

| | | | | |
|---|---|---|---|---|
| Mr. P. Gartlan .. .. .. .. .. .. | Salary | 150 | 0 | 0 |
| „ M. Jennings .. .. .. .. .... | „ | 150 | 0 | 0 |
| „ W. Grinnol .. .. .. .. .. .. | „ | 150 | 0 | 0 |
| „ R. Bunkall .. .. .. .. .. .... | „ | 150 | 0 | 0 |

ARTIFICERS.

| | | | | |
|---|---|---|---|---|
| Mr. J. Pollett .. .. .. .. .. .. | Salary | 68 | 12 | 9 |
| „ J. Hall .. .. .. .. .. .... | „ | 68 | 12 | 9 |
| „ Geo. Richardson .. .. .. .. .. | „ | 68 | 12 | 9 |
| „ S. Speechly .. .. .. .. .... | „ | 68 | 12 | 9 |
| „ J. Munden .. .. .. .. .. .. | „ | 68 | 12 | 9 |
| „ B. Fell .. .. .. .. .. .. .. | „ | 68 | 12 | 9 |

ASSISTANT ARTIFICERS.

| | | | | |
|---|---|---|---|---|
| Mr. S. Peters .. .. .. .. .. .. | Salary | 40 | 0 | 0 |
| „ T. Coulson .. .. .. .. .. .... | „ | 25 | 0 | 0 |

OFFICE ASSISTANT AND SIGNALLERS APPOINTED BY DEPUTY SUPERINTENDENT WITH A VIEW OF PERMANENT ENGAGEMENT.

*Secunderabad Office.*

| | | | | |
|---|---|---|---|---|
| Mr. C. Van Ingen, Head Assistant .. .. | Salary | 100 | 0 | 0 |
| „ C. A. Horton, Head Signaller .. .... | „ | 40 | 0 | 0 |
| „ J. G. Rouchett, Signaller .. .. .. | „ | 30 | 0 | 0 |
| „ J. McNaught, Ditto .. .. .. .... | „ | 25 | 0 | 0 |

*Hyderabad Office.*

| | | | | |
|---|---|---|---|---|
| Mr. J. Carton, Head Signaller .. .. .. | Salary | 30 | 0 | 0 |
| „ J. C. Dwyer, Signaller .. .. .... | „ | 25 | 0 | 0 |
| „ Geo. Hughes, Probationer .. .. .. | „ | 16 | 0 | 0 |

*Kurnool Office.*

| | | | | |
|---|---|---|---|---|
| Mr. T. Brooks, Head Signaller .. .. .... | Salary | 30 | 0 | 0 |
| „ C. S. Chillingsworth .. .. .. .. | „ | 16 | 0 | 0 |
| „ S. Alexander, Probationer .. .... | „ | 16 | 0 | 0 |
| „ M. J. King, Ditto .. .. .. .. | „ | 16 | 0 | 0 |

DELIVERING ESTABLISHMENT, &C., IN SIGNALLING OFFICES.

| | | | | |
|---|---|---|---|---|
| 4 Peons, at Rupees 6 each .. .. .. .... | Salary | 24 | 0 | 0 |
| 2 Message Boys, at Rupees 4 each .. .. .. | „ | 8 | 0 | 0 |
| 1 Battery Man, at 4 Rupees per mensem .... | „ | 4 | 0 | 0 |
| 3 Sweepers, at 2 Rupees each .. .. .. .. | „ | 6 | 0 | 0 |
| 3 Watermen, at 2 Rupees each .. .. .... | „ | 6 | 0 | 0 |

DEPUTY SUPERINTENDENT'S OFFICE, CLERKS, &C.

| | | | | |
|---|---|---|---|---|
| Head Clerk, Mr R. Huddelston .. .. .... | Salary | 75 | 0 | 0 |
| Clerk, Mr. R. R. G. Wilson .. .. .. .. | „ | 30 | 0 | 0 |
| Copyist, B. Narrainswamy .. .. .. .... | „ | 20 | 0 | 0 |
| 2 Peons, at 6 Rupees each .. .. .. .. | „ | 12 | 0 | 0 |

W. MAYES,
*Deputy Superintendent, Electric Telegraphs, Central India.*

DEPUTY SUPERINTENDENT'S OFFICE,
*Secunderabad, the 1st July* 1857.

# PEGU.

## Extent of Line completed.

The Line of Electric Telegraph, completed in the Pegu Circle, extends from Rangoon to Meaday, the Frontier Station, distant 235 miles, and about 12 miles of the proposed Line to Tounghoo.

## Description of Line.

The Line is constructed on posts, some iron-wood, others common jungle-wood. Height 16 feet from ground, iron wire No. 1 guage passing through grooves on top of posts. Insulation tarred cloth. Span 55 yards, or 32 posts to the mile.

## Cabled Rivers.

The Rivers named in the margin are those between Rangoon and Meaday, navigated by Steamers, and crossed by Cables, constructed as those in Bengal, and Superintendent's Manual, page 88. There are several other streams which are not cabled, navigated by native boats during the rainy season only.

River Lyne, 400 yards.
Ditto, 300 ditto.
Irrawaddy, ¾ of a mile.
Ditto, 1¼ mile.

## General Description of Country through which Line passes.

From Rangoon the Line passes along a Cantonment Road 4 miles; it then branches off towards the River a little above Kemendine, passing through low jungle 2 miles, swamps one mile, crossing the River Lyne by a Cable. It then runs through one mile jungle, 14 miles paddy land with swamps, crossing five nullahs; re-passes through dense jungle of 5 miles, through which a passage has been cut of 30 feet of broken ground and stumps of trees, elephant grass 5 miles, re-crossing the Lyne a little below the village of Meazeley. From this crossing to the banks of the Irrawaddy, distant about 20 miles, the intervening country is nothing but dense jungle and elephant grass, making it most difficult to traverse during the rains, owing to the height of the elephant grass, which springs up with renewed vigor. Throughout the whole of this distance, about 50 miles, there are only three villages near the Line, (and these consisting but of three or four huts,) and no roads of any description. Crossing the Irrawaddy three-quarters of a mile, the Line passes over cultivated ground through Donabew 5 miles, from which it crosses a Lake cabled 400 yards; the remaining portion to within 3 miles of a village called Zaloon consists of elephant grass and dense jungle, leaving Zaloon 4 miles cultivated land, passing through 12 miles jungle and grass, 3 miles more cultivated land through the Station of Henzada. Between Donabew and Henzada, there is a circuitous cart-track, crossing the Line in four or five places, available only in the dry season. There is also a swamp through which the Line passes three-quarters of a mile, 2 or 3 feet of water during the dry season. From Henzada to the banks of the Irrawaddy, 5 miles, the Line crosses cultivated ground. A Cable here crosses to Sarrawa, 1¼ mile.

Sarrawa is the commencement of the Tharrawaddy District, through which it has not been safe to pass without an efficient Guard. From Sarrawa to Delingoung, 3 miles, is a swamp with 3 feet of water. From this place to Mengyee there is little cultivated ground, the whole track of country consisting principally of elephant grass and jungle.

From Rangoon to about 10 miles above Mengyee, the country during the Monsoon is in most places rendered impassable, owing to the quantity of water lying thereon; in several places there is as much as 14 feet—the exposure is great. From about 10 miles above Mengyee to Meaday the Line is passable by elephants at all seasons of the year, and a cutcha road most part of the distance.

## Repairs of Line.

The Line can be traversed without difficulty in the dry season; during the rains, the only practicable way of repairing the Line is by boat, entering the many small creeks, testing the wire from place to place.

## The Working of the Line.

The Line from Rangoon to Meaday was completed on the 12th, and opened to the Public for the transmission of Messages on the 15th March 1856.

The accompanying Tabular Statements exhibit in detail the number and extent of the Messages despatched from all the Offices, from the 1st May 1856 to 30th April 1857:—

## Paid Messages.

| Months. | Rangoon. | Henzada. | Mengyee. | Prome. | Meaday. | Total. |
|---|---|---|---|---|---|---|
| May ... ... ... | 14 | 8 | 16 | 25 | 24 | 87 |
| June ... ... ..... | 15 | 13 | 4 | 11 | 14 | 57 |
| July ... ... ... | 10 | 4 | 4 | 1 | 4 | 23 |
| August ... ..... | 9 | 3 | 2 | 21 | 16 | 51 |
| September ... ... | 43 | 7 | 7 | 18 | 15 | 90 |
| October ... ..... | 57 | 7 | 8 | 33 | 26 | 131 |
| November ... ... | 58 | 9 | 5 | 40 | 54 | 166 |
| December ... ..... | 114 | 21 | 12 | 76 | 64 | 287 |
| January ... ... ... | 182 | 20 | 30 | 118 | 96 | 446 |
| February ... ..... | 112 | 13 | 20 | 62 | 79 | 286 |
| March .. .. ... | 178 | 25 | 17 | 60 | 97 | 377 |
| April ... ... ..... | 150 | 30 | 37 | 61 | 82 | 360 |
| Total ... ... | 942 | 160 | 162 | 526 | 571 | 2,361 |

An Abstract analysis of all the 2,361 Messages shows the number of words employed :—

| Words ..... | 1 to 16 | 17 to 24 | 25 to 32 | 33 to 48 | 48 & more | Total. |
|---|---|---|---|---|---|---|
| Messages ..... | 756 | 403 | 514 | 374 | 314 | 2,361 |

Of these Paid Messages, 798 have been sent by Natives.

Government Messages.

| Months. | Rangoon. | Henzada. | Mengyee. | Prome. | Meaday. | Total. |
|---|---|---|---|---|---|---|
| May ... ... ..... | 31 | 8 | 11 | 28 | 24 | 102 |
| June ... ... ... | 20 | 13 | 12 | 30 | 26 | 101 |
| July ... ... ..... | 15 | 4 | 2 | 8 | 15 | 44 |
| August ... ... ... | 11 | 8 | 6 | 14 | 16 | 55 |
| September ... ..... | 31 | 11 | 6 | 26 | 15 | 89 |
| October ... ... ... | 28 | 15 | 16 | 19 | 18 | 96 |
| November ... ..... | 32 | 12 | 10 | 10 | 24 | 88 |
| December ... ... | 52 | 7 | 17 | 42 | 38 | 156 |
| January ... ..... | 54 | 10 | 14 | 48 | 34 | 160 |
| February... ... ... | 48 | 22 | 21 | 21 | 33 | 145 |
| March... ... ..... | 82 | 29 | 20 | 54 | 40 | 225 |
| April ... ... ... | 68 | 12 | 14 | 51 | 36 | 181 |
| Total ..... | 472 | 151 | 149 | 351 | 319 | 1,442 |

An abstract analysis of all the 1,442 Messages shows the number of words employed :—

| Words ..... | 1 to 16 | 17 to 24 | 25 to 32 | 33 to 48 | 49 & more | Total. |
|---|---|---|---|---|---|---|
| Messages ..... | 23 | 97 | 205 | 425 | 692 | 1,442 |

Thus showing the total number of Messages despatched during the twelve months to be as follows :—

| | |
|---|---|
| Paid for on private business ... ... .. ... ... ... ..... | 2,361 |
| Sent on the Public Service, and not paid for in cash ... ... | 1,442 |
| Total number of Messages... ... | 3,803 |

CASH PAYMENTS.

The total amount of Cash received for Messages, including Messenger hire, has been as follows:—

| | | | |
|---|---|---|---|
| In May ... ... ... ... ... ... ... .. ... ... | 191 | 8 | 0 |
| „ June ... ... ... ... ... ... ... ... ..... | 114 | 8 | 0 |
| „ July ... ... ... ... .. ... ... ... ... ... | 45 | 8 | 0 |
| „ August ... ... ... ... ... ... ... ... ..... | 91 | 0 | 0 |
| „ September ... ... ... ... ... ... ... ... ... | 211 | 8 | 0 |
| „ October ... ... ... ... ... ... ... ... ..... | 320 | 0 | 0 |
| „ November ... ... ... ... .. ... ... ... ... | 391 | 8 | 0 |
| „ December ... ... ... ... .. ... ... .. ... | 646 | 12 | 0 |
| „ January ... ... ... ... ... ... ... ... ... | 1,239 | 4 | 0 |
| „ February ... ... ... ... ... ... ... ... ..... | 879 | 10 | 0 |
| „ March ... ... ... ... ... ... ... ... ... ... | 1,126 | 12 | 0 |
| „ April ... ... ... ... ... ... ... ... ..... | 899 | 12 | 0 |
| Total Company's Rupees ... ..... | 6,157 | 10 | 0 |

The total amount of *Pro formâ* Charges for Public Messages and Circulars supplied to Government Offices has been as follows:—

| | | | |
|---|---|---|---|
| In May ... ... ... ... ... ... ... ... ... ... | 356 | 0 | 0 |
| „ June... ... ... ... ... ... ... ... .. ..... | 400 | 8 | 0 |
| „ July ... ... ... ... ... ... ... .. ... ... | 169 | 8 | 0 |
| „ August ... ... ... ... ... ... ... .. ..... | 170 | 0 | 0 |
| „ September ... ... ... ... ... ... ... ... ... | 169 | 8 | 0 |
| „ October ... ... ... ... ... ... ... ... ..... | 324 | 8 | 0 |
| „ November ... ... ... ... ... ... ... ... ... | 758 | 0 | 0 |
| „ December ... ... .. ... ... ... ... ..... | 676 | 0 | 0 |
| „ January ... ... ... ... ... ... ... ... ... | 898 | 4 | 0 |
| „ February ... ... ... ... ... ... ... ... ... .. | 730 | 12 | 0 |
| „ March ... ... ... ... ... ... ... ... ... ... | 1,253 | 6 | 0 |
| „ April ... ... ... ... ... ... ... ... ..... | 1,030 | 4 | 0 |
| Total Company's Rupees ... ..... | 6,936 | 10 | 0 |

Thus showing the total amount of Messages despatched during the twelve months to be as follows:—

| | | | |
|---|---|---|---|
| Cash received for Messages ... ... ... ... ... ... | 6,157 | 10 | 0 |
| Value of Government Despatches ... ... ... ..... | 6,936 | 10 | 0 |
| Total Company's Rupees ... ..... | 13,094 | 4 | 0 |

INSTRUMENTS IN USE.

The instruments now in use on the Line are the new transmitting instruments, which have been found to answer remarkably well. There are neither lightning instruments nor conductors supplied to this Circle.

The alarums sent have been out of order some time since; new ones were indented for, but have not yet been supplied.

The Battery in use is Daniel's, with Sulphate of Copper—Superintendent's Manual, page 11.

EFFECTS OF LIGHTNING ON THE LINE.

During the Monsoon, the lower part of Burmah, from Rangoon to Mengyee, is visited by heavy thunder-storms. On three different occasions, flashes of lightning have struck the Line, traversed the instruments, destroyed the coils, and on one occasion fused the points of brass on the Telegraph Stool, and portions of the transmitting instrument.

The Cables across both portions of the River Lyne have been injured by the lightning striking the wire and bursting the Gutta Percha, a small piece of which has been forwarded to Bengal.

Several posts have also been destroyed by lightning.

INTERRUPTIONS OF COMMUNICATION.

After the completion of the Line, interruptions were frequent for the first two months, caused by the breaking of the English joints or weldings as also the posts being thrown down by wild elephants. These interruptions have been remedied in the course of a few hours, by parties leaving each Office between which the interruptions occurred.

On the 18th July 1856, owing to the heavy rush of water carrying away the bank at Sarrawa, the Cable at that place was injured, and the communication was carried on by boat between Henzada and Sarrawa, a distance of 5 miles, until the sixteenth of December, when a new Cable was made and placed across the River, since which time the Line has been working well.

COMPLAINTS.

A complaint was made by the Commissioner of Pegu regarding the frequent mistakes in Messages, of which I had also complained in my letters to the Chief Superintendent. Although no complaints have been made to this Office of any messages passing through the Telegraph, on examining the records, I have detected several, but I am happy to add, that such mistakes now are very few.

ESTABLISHMENT.

On the opening of the Pegu lines, the Signallers employed were but novices in their duty, having been trained in this Office, and composed of young lads procurable from H. M.'s 84th Regiment, three only of whom could read and write with accuracy. The Establishment at that time being as follows :—

| | |
|---|---|
| *Rangoon Office.* | One Inspector. |
| | One Signaller, reads and writes. |
| *Henzada ditto.* | One Artificer. |
| | Two Signallers, read and write indifferently. |
| *Mengyee ditto.* | One Artificer. |
| | One Signaller, reads and writes. |
| | One ditto ditto, very indifferently. |
| *Prome ditto.* | One Artificer. |
| | Two Signallers, read and write indifferently. |
| *Meaday ditto.* | One Inspector. |
| | Two Signallers, read and write. |

From the paucity of lads obtainable in Rangoon, I experienced a great deal of trouble, having no one to re-place them, of which they were well aware. The slightest punishment would induce them to desert. They were constantly seeking an increase of salary, and I could not adopt the system of punishment for irregularity of conduct, which I have been enabled to do since Signallers were received from Madras and Calcutta, and those who then misconducted themselves have since been dismissed.

Four of the Artificers, men from the ranks, have been remanded to their Regiment for drunkenness or insubordination ; no dependence can be placed upon such men when away from the strict discipline of their Regiment.

In January last, five Signallers were received from Madras, and five others in March. In July last three Signallers, and in September one Signaller, were received from Bengal. The lads now, with one or two exceptions, behave themselves very creditably, are attentive to their duties, and are improving in their signalling.

Annexed is the abstract of Establishment of the Electric Telegraphs in the Pegu Circle, as it stands on the 1st May 1857.

H. WICKHAM,
*Deputy Superintendent, Electric Telegraphs in Pegu.*

RANGOON ;
*Electric Telegraph Office,*
*The 1st August* 1857.

*ABSTRACT of Establishment of the Electric Telegraphs in the Pegu Circle as it stands on the 1st May 1857.*

| Names. | Designation. | Years of Age. | Years of service in Pegu. | Amount of Salary. | Amount of each Station. | Total in Co.'s Rs. | Rate of Signalling. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| Henry Wickham, Esq. ..... | 2nd Class Depy. Supt. Elec. Tele.... | 41 6 0 | 3 6 0 | 400 0 0 | | | | |
| RANGOON. | | | | | 400 0 0 | | | |
| Mr. Stuart Porter... ... ... | Inspector ... | 26 0 0 | 3 6 0 | 150 0 0 | | | 4 Words per minute with writing ... | Steady, attentive, giving general satisfaction. |
| John Boyle ... ... ..... | Signaller ... | 18 0 0 | 1 8 0 | 50 0 0 | | | 65 W. in 7 minutes with writing ... | Good writer, attentive, very deserving. Salary to be increased to 70. |
| Sadrus Therovengadum ... | Ditto ... | 18 0 0 | 0 4 0 | 30 0 0 | | | 59 W. in 8 minutes with writing ... | Very attentive, obedient, desirous of improving. Salary to be increased to 50. |
| Daniel Conn ... ... ..... | Ditto ... | 13 0 0 | 1 1 0 | 30 0 0 | | | 49 W. in 9 minutes with writing ... | Very deserving, obliged to leave with H. M.'s 84th Regiment. |
| Lazarus Brown ... ... ... | Ditto ... | 15 0 0 | 0 4 0 | 30 0 0 | | | 51 W. in 11 minutes with writing ... | Slow, willing, improving. |
| Peons ... ... ... ... ... | Two at 12 each ... | ..... | ..... | 24 0 0 | | | ... ... ... | Conduct satisfactory. |
| Line Chokeedar... ... ..... | One at 12 ... | ..... | ..... | 12 0 0 | | | ... ... ... | |
| Line Chokeedar ... ... ... | One at 10 ... | ..... | ..... | 10 0 0 | | | ... ... ... | |
| Bheesty ... ... ... ..... | One at 10 ... | ..... | ..... | 10 0 0 | | | ... ... ... | |
| Sweeper... ... ... ... ... | One at 10 ... | ..... | ..... | 10 0 0 | | | ... ... ... | |
| HENZADA. | | | | | 356 0 0 | | | |
| Serjeant John Kerwick ..... | Artificer ... | ..... | 0 9 0 | 100 0 0 | | | 37 W. in 19 minutes with writing ... | At first very attentive, latterly careless and impertinent; since remanded to his Company. |
| John Byrne ... ... ... ... | Signaller ... | 16 0 0 | 1 2 0 | 30 0 0 | | | 46 W. in 9 minutes with writing ... | Attentive and improving. Salary to be increased to 50. |
| Michael Sullivan ... ..... | Ditto ... | 13 0 0 | 0 2 0 | 30 0 0 | | | 53 W. in 12 minutes with writing ... | Improving rapidly. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Benjamin Bates ... ... ... | Ditto ... | 17 0 0 | 0 2 0 | 30 0 0 | | | 60 W. in 16 minutes with writing ... | Very attentive, well behaved, improving. Salary to be increased to 40. |
| Michael Powers... ... ..... | Ditto ... | 16 0 0 | 1 0 0 | 30 0 0 | | | 60 W. in 12 minutes | At first inclined to give trouble, now becoming steady and attentive. Salary to be increased to 40. |
| Robert Hurd ... ... ... ... | Ditto ... | 17 0 0 | 0 9 0 | 30 0 0 | | | 60 W. in 16 minutes | Slow, dull, and careless. |
| Line Chokeedars ... ..... | Two at 10 each ... | ..... | ..... | 20 0 0 | | | | |
| One Sweeper ... ... ... ... | One at 4 ... | ..... | ..... | 4 0 0 | | | | |
| | | | | | 274 0 0 | | | |
| MENGYEE. | | | | | | | | |
| Private William Upton ..... | Artificer ... | 32 4 0 | 1 9 0 | 100 0 0 | | | ... ... ... | Indifferent reader; steady; persevering in his duties; keeps Office and Papers in good order. |
| John T. Johnson ... ... ... | Signaller ... | 21 0 0 | 2 9 0 | 50 0 0 | | | 10 W. per minute without writing... | This lad has given very great trouble; habits bad; promises to amend. |
| John Nowland... ... ..... | Ditto ... | 23 0 0 | 1 7 0 | 40 0 0 | | | 9 W. per minute without writing... | Indifferent writer, rather dull, but willing. Salary to be increased to 50. |
| Edward Lennon ... ... ... | Ditto ... | 16 0 0 | 0 2 0 | 30 0 0 | | | 5 W. per minute without writing... | Careless and independent. |
| Charles Anderson ... ..... | Ditto ... | 15 0 0 | 0 4 0 | 30 0 0 | | | 4 W. per minute without writing... | Very dull, provokingly slow, and not improved since arrival. |
| Line Chokeedars ... ... ... | Two at 10 each ... | ..... | ..... | 20 0 0 | | | | |
| Sweeper ... ... ... ..... | One at 4 ... | ..... | ..... | 4 0 0 | | | | |
| | | | | | 274 0 0 | | | |
| PROME. | | | | | | | | |
| Charles Spence Gaynor... ... | Assistant ... | ..... | ..... | 100 0 0 | | | ... ... ... | Since resigned. |
| John J. White ... ... ..... | Signaller ... | 18 0 0 | 1 0 0 | 40 0 0 | | | 62 W. in 9 minutes without writing... | Very attentive and willing. Salary to be increased to 50. |
| Thomas Wood ... ... ... | Ditto ... | 16 0 0 | 0 2 0 | 30 0 0 | | | 55 W. in 9 minutes without writing... | Improved much since joining; attentive, and willing. Salary to be increased to 40. |
| Carried over,... ... | ... ... ... | ..... | ..... | 170 0 0 | ..... | 1,304 0 0 | | |

*ABSTRACT of Establishment of the Electric Telegraphs in the Pegu Circle as it stands on the 1st May 1857.—(Continued.)*

| NAMES. | Designation. | Years of Age. | Years of service in Pegu. | Amount of Salary. | Amount of each Station. | Total in Co.'s Rs. | Rate of Signalling. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Brought forward ... | ... ... ... | ..... | ..... | 170 0 0 | ..... | 1,304 0 0 | | |
| *Prome.—(Continued.)* | | | | | | | | |
| John Quailey ... ... ..... | Signaller ... | 17 0 0 | 0 4 0 | 30 0 0 | | | 75 W. in 28 minutes without writing... | Not improved since arrival; careless, and provokingly slow. |
| Line Chokeedars ... ... ... | Two at 10 each ... | ..... | ..... | 20 0 0 | | | | |
| Sweeper ... ... ... ..... | One at 4 ... | ..... | ..... | 4 0 0 | | | | |
| | | | | | 224 0 0 | | | |
| MEADAY. | | | | | | | | |
| Mr. Peter Lonergan ... ... | Inspector ... | 22 0 0 | 3 6 0 | 150 0 0 | | | 10 W. per minute without writing... | Very attentive and energetic in his duties; perfectly conversant with Office and Construction work. |
| Andrew Dawson ... ..... | Signaller ... | 17 0 0 | 1 4 0 | 40 0 0 | | | 7 W. per minute with writing ... | Attentive and obedient. |
| Horatio Godfrey ... ... ... | Ditto ... | 18 0 0 | 0 4 0 | 30 0 0 | | | 55 W. in 10 minutes without writing... | Very obedient and attentive. Salary to be increased to 40. |
| James Lilywhite ... ..... | Ditto ... | 16 0 0 | 0 2 0 | 30 0 0 | | | 48 W. in 15 minutes without writing... | Very willing and attentive; bids fair to do well. |
| Louis Vaillant ... ... ... | Ditto ... | 17 0 0 | 0 8 0 | 40 0 0 | | | 41 W. in 15 minutes without writing... | Attentive when watched; cannot be trusted; filthy in his habits; since dismissed. |
| Peon ... ... ... ... ..... | One at 10 ... | ..... | ..... | 10 0 0 | | | | |
| Line Chokeedars ... ..... | Two at 10 each ... | ..... | ..... | 20 0 0 | | | | |
| Sweeper ... ... ... ... | One at 4 ... | ..... | ..... | 4 0 0 | | | | |
| Bheesty ... ... ... ..... | One at 4 ... | ..... | ..... | 4 0 0 | 328 0 0 | 552 0 0 | | |
| Total Company's Rupees ... | ... ... ... | ..... | ..... | ..... | ..... | 1,856 0 0 | | |

H. WICKHAM,
*Deputy Superintendent, Electric Telegraphs in Pegu.*

*ABSTRACT STATEMENT showing the Total Cash Receipts and Pro-formâ Charges of each Month, on account of Paid and Service Messages transmitted by Electric Telegraph during the year* 1856-57 ; *also the Total number of Messages sent by Natives.*

| MONTHS. | Total number of Paid Messages. | Total number of Service Messages. | Total number of Paid and Service Messages. | Total number of Messages sent by Natives. | Total Amount of Paid Messages. | Total Amount of Service Messages. | Total amount of Paid and Service Messages. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| May 1856 ... ... ... ..... | 3,365 | 780 | 4,645 | 798 | 18,402 15 0 | 4,407 10 0 | 22,810 9 0 | |
| June 1856 ... ... ... ... ... | 3,151 | 650 | 3,801 | 1,127 | 13,439 10 0 | 2,893 2 0 | 16,332 12 0 | |
| July 1856 ... ... ... ..... | 2,973 | 643 | 3,616 | 849 | 13,787 5 9 | 2,671 3 0 | 16,458 8 9 | |
| Total of each Quarter... ... | 9,989 | 2,073 | 12,062 | 2,774 | 45,629 14 9 | 9,971 15 0 | 55,601 13 9 | |
| August 1856 ... ... ..... | 3,363 | 507 | 3,870 | 1,377 | 15,797 14 6 | 5,158 2 0 | 20,956 0 6 | |
| September 1856... ... ... ... | 3,272 | 568 | 3,840 | 926 | 13,491 9 3 | 4,951 13 0 | 18,443 6 3 | |
| October 1856... ... ... ..... | 4,161 | 556 | 4,717 | 1,550 | 16,716 13 9 | 4,844 2 0 | 21,560 15 9 | |
| Total of each Quarter... ... | 10,796 | 1,631 | 12,427 | 3,853 | 46,006 5 6 | 14,954 1 0 | 60,960 6 6 | |
| November 1856 ... ... ..... | 4,286 | 488 | 4,774 | 1,137 | 18,288 7 0 | 5,199 6 0 | 23,487 13 0 | |
| December 1856... ... ... ... | 5,083 | 717 | 5,800 | 2,049 | 22,704 10 3 | 7,570 8 0 | 30,275 2 3 | |
| January 1857 ... ... ..... | 5,715 | 1,084 | 6,799 | 2,390 | 25,544 1 3 | 11,777 1 0 | 37,321 2 3 | |
| Total of each Quarter... ... | 15,084 | 2,289 | 17,373 | 5,576 | 66,537 2 6 | 24,546 15 0 | 91,084 1 6 | |
| February 1857 ... ... ..... | 5,093 | 841 | 5,934 | 2,079 | 23,478 10 6 | 8,800 9 0 | 32,279 3 6 | |
| March 1857 ... ... ... ... | 5,227 | 1,121 | 6,348 | 2,015 | 23,405 11 6 | 10,785 10 0 | 34,191 5 6 | |
| April 1857 ... ... ..... | 5,344 | 1,053 | 6,397 | 2,331 | 26,078 2 6 | 10,189 14 0 | 36,268 0 6 | |
| Total of each Quarter... ... | 15,664 | 3,015 | 18,679 | 6,425 | 72,962 8 6 | 29,776 1 0 | 1,02,738 9 6 | |
| Grand Total ... ..... | 51,533 | 9,008 | 60,541 | 18,628 | 2,31,135 15 3 | 79,249 0 0 | 3,10,384 15 3 | |

By Order,

SEEB CHUNDER NUNDY,

*In charge, Office of the*

*Offg. Supdt., Elec. Tel. in India.*

John Gray, "Calcutta Gazette" Office.

# GENERAL REPORT

OF THE

# TELEGRAPH DEPARTMENT,

FOR THE YEAR 1857-58.

134613

ELECTRIC TELEGRAPH.

# GENERAL REPORT,

## FROM NOVEMBER 1856 TO OCTOBER 1858.

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# GENERAL REPORT

OF THE

# TELEGRAPH DEPARTMENT,

**For the Year 1857-58.**

---

To

CECIL BEADON, ESQUIRE,

*Secretary to the Government of India,*

CALCUTTA.

SIR,

I HAVE the honor to acknowledge the receipt of your letter No. 2053, dated 8th September 1858, in which I am directed to send in a general report on the state of the Telegraph Department for the official year 1857-58, incorporating therewith the substance of the report due for the preceding year by the officers in charge of the department during my absence.

2. In obedience to the orders of Government, I proceed to submit the following details, many of which must necessarily be found incomplete and unconnected. In explanation of this, I have to recall to mind, that I have been absent from India on duty in Europe, from March 1856 to December 1857. The memorable events of the latter year have further thrown this department into a state of great confusion, and since my return to India my opportunities for personal superintendence have been unavoidably restricted to the Bombay and Madras Circles. Lastly, the general supervision of the vast works of reconstruction of the lines destroyed; the construction of an immense extent of new lines; the reorganization of offices; and the examination of great arrears of accounts accumulated during my absence, have all pressed so heavily upon my time and strength as to leave me but little able to prepare this report in the manner in which I should desire to place it before Government and the public. The subjects I have to treat of divide themselves naturally thus:—

I. State of the lines on my proceeding to England in 1856, and up to May 1857.

II. Destruction of lines during the rebellion, and extent to which this has been repaired.

III. New lines constructed and offices opened since 1856, with notices of

New Lines under construction,
Lines sanctioned and about to be commenced,
Number of offices now open and to be opened on lines now sanctioned.

IV. Total establishment of all grades now entertained, with their salaries, &c.

V. General cost of all lines and offices.

VI. Cash Receipts for messages, and value of official despatches.

VII. Introduction of the American system of signalling. Establishment brought from England for this purpose: number,—salaries,—disposition list,—actual cost to Government.

VIII. Working and discipline of offices generally; Daily Reports; detection of errors; regulations respecting visitors; audit of accounts, &c.

IX. Desiderata to render the Department thoroughly efficient: A Central School, Central Workshop, and Sanatarium.

*I. State of Lines in* 1856, *and II., Destruction caused by the mutineers.*

3. On the 28th of February 1856, the telegraph lines constructed under my direction during the two preceding years extended in unbroken range from Saugor Light-house, at the mouth of the Hooghly, to Peshawar, beyond the Indus, *viâ* Calcutta, Benares, Cawnpore, Agra, Delhi, and Lahore. From Agra the line stretched South to Gwalior, Indore, and Bombay; and from Bombay traversed the Deccan, *viâ* Poona, Belgaum, and Bellary, to Bangalore and Madras. Lastly, from Bangalore a line ran South to Mysore and the Neilgherry Mountains.

See Polymetrical Tables.

The total length of these great lines was 3756 miles, with 55 offices. The monthly income in cash receipts for messages was Rupees 17,690.* The monthly value of service messages, averaged Rupees 6,557. Total value of business done, Rs. 23,247.

* 1st General Report dated 31st Jan. 1856, p. 42.

4. The lines and offices worked well. It was a common occurrence to transmit a long despatch from Bombay to Calcutta, *viâ* Agra, over 1600 miles, in half an hour; and nothing seemed wanting to the perfect efficiency of the department, but the introduction of the American system of signalling, then being adopted all over Europe after the fair and patient comparative trial in all countries of every system of signalling proposed by the several inventors who have distinguished themselves in this great application of science.

5. In 1856, under the general directions of the late Lieutenant Chauncey, of Captain Stewart, and the late Mr. Brooking, new lines were made from Mysore to Mercara, Cannanore, and Calicut (miles 203); from Bellary to Hyderabad, under Mr. Mayes (236); from Madras to Pondicherry, by the late Mr. Brooking (98); and from Nassick to Surat (143) by Mr. Brunton,—Total 680 miles. There was also constructed during the same time, a line to Patna from Burdwan along the railway embankments, 300 miles, connecting the towns of Rajmahal, Monghyr, Bhaugulpore, and Patna. This line was constructed by Mr. Adley, Engineer to the East Indian Railway Company, and made over to the Government of India, in accordance with an agreement to that effect.

6. From March 1856 to May 1857, the progress of the Telegraph may be briefly described as satisfactory in every respect. Business increased as the lines extended; the cash income rose from Rupees 18,288 in May 1856, to Rs 26,888 in May 1857. Complaints decreased as greater experience and accuracy were gained, and the number of messages sent by the native community had very largely increased.

7. Matters were in this prosperous state when the fatal events of May 1857 caused the destruction of a great extent of our lines and offices. I have to show briefly the extent of havoc this department has thus suffered.

8. The line between Meerut and Delhi was the first destroyed. This took place on the night of the 11th May: on the 15th, a message from Meerut announced in Calcutta that Delhi was in the hands of the mutineers:—two days later, communication ceased with Meerut. An office was opened at Allyghur, and kept at work for ten days, when all the European inhabitants had to fall back on Hattrass. This post soon became untenable, and all communication ceased on the Meerut line, which the mutineers and villagers then totally destroyed.

9. Meanwhile, Mr. Charles Todd, the Assistant in charge at Delhi, had fallen in the general massacre, but not until his office had signalled to the Punjab the terrible events at Meerut, and the march of the mutineers on Delhi. The value of that last service of the Delhi office is best described in the words of the Judicial Commissioner, Mr. Montgomery: "THE ELECTRIC TELEGRAPH HAS SAVED INDIA."

10. The message led to the prompt disarming of the native regiments in Lahore and Peshawar, and as the line from Delhi to the Punjab was, through the gallant and indefatigable services of Mr. Inspector Brown, kept open during the whole time of the siege of Delhi, the line and intermediate offices rendered inestimable service to the Government of India, and to the highest interests of the whole empire.

11. The nature of this report, and the object to which it is restricted, renders it inappropriate to enter here upon the details of the services rendered by members of this department during these great events. A roll is appended, giving the names of the officers, assistants, signallers, and others, who deserve well of Government and the country for their gallant and laborious services.

12. To resume the narrative of destruction. Communication was excellent between Agra and Cawnpore, and Agra and Indore, to the 1st week in June, when the mutiny at Cawnpore took place, and Agra was cut off from all communication with Calcutta. An office was then opened at Mynpooree, and kept at work till the 1st of July, when that station had to be abandoned. On the 14th of June, the Gwalior Contingent revolted and cut the line.

Three days afterwards the mutiny broke out at Seepree, and the Telegraph office was burned. The Beowra office also was burned down on the 29th June, and the assistants escaped to Hossungabad. On the 1st of July the fatal outbreak at Indore took place. Messrs. Butler, Avery, Bone, and Brooke, of this department, were cruelly murdered, and the office instruments and lines were entirely destroyed.

13. By this time the whole line from Agra to Indore, 400 miles; Agra to Cawnpore, 180 miles; and Agra to Delhi, 178 miles, had been totally demolished, the posts used for fire-wood, the wire cut up for slugs or bullets, or rendered perfectly unserviceable for telegraph purposes.

14. The events, thus succinctly described, broke up the offices and dispersed the assistants from Allahabad to Delhi, and the Nerbudda. At Cawnpore, Mr. Farmer and all his establishment were murdered. Those who escaped at Agra entered the militia, in which they did good service. All through these trials the Acting Deputy Superintendent Mr. Todhunter, earned great credit for his gallant and assiduous exertions. He saved all the instruments and public property in his office in Agra, but there and at Indore* lost all the private property he possessed. The repeated thanks of Government, and promotion in the department, have been his just reward, and compensation will, I trust, be given for his private losses. In the sequel of this report, I shall have to describe his renewed and inestimable services in reconstructing the Indore and Agra line this year, in the actual presence of the rebel cavalry, up to the time of their being attacked and defeated by General Mitchell at Beowra in September.

* NOTE.—From which station he had been moved to Agra, just before the rebellion.

15. To continue the description of the destruction of the line, I have next to notice, that from Cawnpore towards Bengal, between Cawnpore and Allahabad, everything but the iron-wood posts from Arracan, was destroyed. These posts were too heavy to be carried away, too hard to be cut up, and were almost incombustible, so that except a mere charring, they have escaped, and are again in use.

16. Between Allahabad and Benares there was comparatively small damage done. The wire was cut, but communication was restored on the 20th June by the late Mr. Devere, since murdered between Lucknow and Cawnpore, and by Baboo Thakoor Pershad, who both accompanied the first force which marched along the Grand Trunk Road.

17. Between Cawnpore and Lucknow, not even a remnant of the line remained when Captain Stewart went over that road with General Havelock's column.

18. Such was the extent of ruin wrought on our lines. Their restoration for *temporary use* has, however, been accomplished with extraordinary rapidity and determination, by Captain Stewart, Mr. Harrington, Mr. Todhunter, and Mr. Naylor, Messrs. Devere, McIntyre, and others. Copper wire, odds and ends of iron wire from the road side and the bazaars, branches of trees, bamboos not much more substantial than walking sticks,—every thing which could be used has been made use of; and with the invaluable result of restoring communication on the 29th January 1858 between the N. W. Provinces, the Punjab, and Bengal. But the whole of the lines in question have to be reconstructed in a substantial and permanent manner, before they can be depended on for continuous and uninterrupted correspondence. Until this solid reconstruction* can be effected, numerous interruptions on these lines must unavoidably take place, for which the Government of India will doubtless make just allowance.

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* Now in progress.

19. Between Agra and Indore the line has been entirely restored through the indomitable courage and untiring exertions of Mr. Todhunter, assisted by Mr. Naylor. The line from Agra to Gwalior was first restored by Captain Murray, then once more wrecked by the Gwalior rebels after Sir Hugh Rose had taken Calpee. It is now up again. Mr. Todhunter worked up from Indore, opening offices at Beowra, Bursud, Ragooghur and Goona;* this, while officially warned to quit the line, both by Sir Robert Hamilton and myself, his answer was, "I am well mounted and well armed, and I will hold the station to the last." He kept his word. Signaller Higgins at Beowra buried the instruments before he left. The office was soon in flames, but the instruments were uninjured; and when General Mitchell, on the 15th September last, attacked and dispersed Tantia Topie's forces at Beowra, Mr. Higgins dug up his instruments and reopened communication the same day.

* In August and September this year.

20. In all these trials, Mr. Todhunter and his assistants at the Indore side, and Mr. Naylor in the opposite direction, were afforded the kindest encouragement by Sir Robert Hamilton, Sir Robert Napier, Captain Mayne, and every other officer, Civil and Military, who could give them assistance or protection.

21. To conclude this sketch of the injuries the department has suffered, I must add, that the physical demolition of our lines and offices has not been the only mischief. Many of our best men have been murdered, and others have left our ranks to join eagerly in the stirring duties of military life. But not the least evil has been the almost total cessation of all discipline, order, or regularity, on *distant* lines and offices far away from the scenes of revolt and war. The unavoidable and incessant occupation of the Acting Superintendent Captain Stewart, and his assistant Captain Limond, while engaged on the fortifications of Rajghat, and the necessity for the attendance of Captain Stewart on the Commander-in-Chief on both his advances on Lucknow, necessarily withdrew his control from the Circles of Madras and Bombay, where the Deputy Superintendents then in local charge failed remarkably in their duties: not only did their circles become virtually independent, but every separate office became independent also, and the assistants in charge soon treated every order and rule of the department with open and wilful contempt. I found on my arrival in Bombay in December last year, and on proceeding to the Madras Presidency in May, a state of confusion in every office which has almost baffled every effort to restore the discipline which once existed, and without which it is as impracticable to work a system of Telegraph Offices, as it would be to manage an undrilled army, or an unpractised and insubordinate fleet.

22. I append a narrative by Mr. O'Donnell, Deputy Superintendent of Bengal, describing his expedition along the Grand Trunk Road to restore communication after the mutiny at Benares and Dinapore. In this service Mr. O'Donnell acquitted himself with great judgment and courage: a like tribute of praise is due to Mr. Bence and Mr. Hourigan, who accompanied Mr. O'Donnell on the service in question.

23. But by far the most interesting occurrence in the story of the restoration of our lines is found in the dashing exploit of Captain Stewart, Mr. Harrington, Mr. McIntyre, and Mr. Devere, in running up a flying line from Cawnpore to Lucknow in the last advance of the Commander-in-Chief on that city. The cool intrepidity and

ready resources displayed by Captain Stewart on that occasion, gained for him the hearty applause of the whole army. I append his report, to which I refer with much pleasure, as one of the best proofs yet given of the value of this department in military operations as well as in its political and civil bearings.

---

### III.—*New Lines Constructed and Offices opened since December* 1857.

24. In addition to the lines named in para. 5, and extending to 680 miles, the following have been added to our system up to this date from December last year to the 15th October 1858:—

| | Miles. | |
|---|---|---|
| Rangoon to Tonghoo ... ... ... | 120 | Constructed by Captain McGrath: opened in May 1858. |
| Hyderabad to Bezwara on East Madras Coast ... ... ... ... | 167 | Ditto by Mr. Mayes: opened in May 1858. |
| Kedgeree to Madras; Coast line... ... | 950 | Ditto by Captain McGrath and Mr. Brooking, now under entire reconstruction by Mr. Mayes: opened in February 1858. |
| Pondicherry to the Gulf of Manaar and Paumbaun ... ... ... ... | 260 | Ditto by Mr. Merritt and Mr. Parsons: opened in October 1858. |
| Cable laid across Gulf of Manaar... ... | 21 | Ditto by Mr. Wickham: laid in September 1858. |
| Calcutta to Dacca... ... ... ... | 167 | Ditto by Inspector Seeb Chunder Nundy: opened in September 1858. |
| Surat to Deesa ... ... ... ... | 260 | Ditto by Inspector Wright: opened in April 1858. |
| Kurrachee to Deesa ... ... ... | 395 | Ditto Offg. Dy. Supdt. Smith: opened in October 1858. |
| Bombay to Matheran ... ... ... | 65 | Ditto Inspector Man: opened in April 1858. |
| Calicut to Cochin ... ... ... | 100 | Ditto Inspector Alvarez: to be opened this October. |
| Meerut to Moradabad and Bareilly ... | 138 | Ditto Inspector Naylor: opened in September 1858. |
| Belgaum to Sawunt Waree and Vingorla | 76 | Ditto Inspector Hill: opened in August 1858, by Inspector Hill. |
| New lines named in para. ... ... | 680 | |
| Total *new lines* ... ... ... | 3,399 | |
| Add those open in March 1856 ... | 3,756 | |
| Total miles ... ... ... ... | 7,155 | Now open, and in work. |

25. On all these lines offices have been opened for public correspondence, and all work well except the line from Kedgeree to Madras, which has failed completely, and must be entirely re-made. I have already, in a separate report, detailed the causes which have led to the failure of the Madras Coast line regarded as one of *thorough* communication between Calcutta and Madras. While many and grave errors have been committed in its construction, full allowance will doubtless be made for the extreme haste with

which it was put up, the total inexperience of most of the subordinate persons employed upon it, and the excessive physical difficulties presented by the very numerous broad and rapid rivers, the non-existence of roads, or of any means of rapid locomotion, and the great unhealthiness of many places on the line.

26. This is now, however, in the hands of our very best men, and under Mr. Mayes, of whom I have so frequently reported to Government in terms of well-deserved commendation. The offices have been all supplied with the American instruments, and with the *élite* of our corps of signallers, every possible exertion has been and shall be made to render the line efficient. But I cannot conceal my opinion, that it will always be the most unmanageable and unsafe of the whole in our Indian system. It will prove, however, of some *local* value, the whole year round. While I write, though communication is interrupted between Nellore and Beizwara, and Rajahmundry and Vizagapatam, this last named place is in communication with Balasore, and Nellore with Madras:—this, in the heaviest month of the Bengal monsoon, and the commencement of the rains in the Madras circle. At this moment,* a torrent of rain is falling from Nellore to Ramnad. The rivers are all raging floods. Dams ("anicuts") and bridges, telegraph posts and cables, are all being swept away. The country is a lake,—no conveyance but a canoe can move over the so-called roads. This is the normal condition of the East Coast Line from the 1st of June to the 15th December; the weather will then become fine, that is, intensely hot and dry, and Madras and Calcutta will be in tolerably good communication by this line, from the 1st January to the 1st of June.

27. I feel bound to add, that all these difficulties were clearly foreseen and pointed out to the Court of Directors when I was referred to on the subject in 1853. I then stated in exact terms what was to be expected, and on that opinion it was resolved to connect Madras with Calcutta by an *inland* line. The events of last year, however, rendered a *coast* line of any kind a political necessity, and we must now only do the best we can to render it of some utility.

28. I must not close this section of my report without adverting in terms of hearty praise to the rapidity with which the Kurrachee and Deesa line across the Runn of Cutch has been constructed by Mr. Smith. He commenced the Hyderabad section in April last, and opened the line for public correspondence on the 15th of October. If he has not had the floods of the East Coast to buffet with, the indescribable heat of the Runn and the terrors of the Sindh fever should justly be entered to the credit of his account with the public.†

29. I have also to advert to the masterly feat Mr. Wickham has performed in placing the telegraph cable across the Gulf of Manaar, in a native sailing-vessel, and during bad weather. The operation was as difficult, the line as long, the navigation at least as dangerous, as that of placing the cable across the Straits of Dover, for which a squadron of Steamers and costly machinery were employed. Mr. Wickham performed his task under sail, and with no other apparatus than the rude windlass of a native vessel.

* 15th October.

† In a previous Report, I have brought to the favorable notice of Government, the very creditable exertions of Mr. Inspector Wright, in the construction of the line from Surat to Deesa.

I append copy of Mr. Wickham's excellent report, which well deserves perusal, and shows what practical skill and personal activity can accomplish under every drawback.

30. New lines *under construction*, but not yet opened, these are:—

| | *Miles.* |
|---|---|
| Jelasore to Midnapore and Cuttack, under Mr. Inspector Munden ... | 126 |
| Rajmahal to Burdwan, Mr. Floyd ... ... ... ... ... ... | 120 |
| Dacca to Chittagong, transferred to Captain McGrath ... ... ... | 140 |
| Chittagong to Akyab ditto ... ... ... ... ... | 170 |
| Cawnpore to Calpee, Mr. Harrington ... ... ... ... ... | 50 |
| Allahabad to Pertabgurh,* and Fyzabad and Lucknow, Mr. Harrington... | 160 |
| Hyderabad (Sindh) to Lahore, Mr. Smith ... ... ... ... ... | 600 |
| Hyderabad (Central India) to Mirzapore, Mr. Nowill ... ... ... | 788 |
| Miles ... ... | 2,154 |

These lines are being erected with all possible speed, and will doubtless be completed at the rate of progress usual in this Department.

31. Lastly, the following lines have been sanctioned, though possibly the construction of some of them may be postponed from financial considerations.

| | *Miles.* |
|---|---|
| Bombay to Rutnagherry ... ... ... ... ... ... ... | 150 |
| Rutnagherry to Vingorla ... ... ... ... ... ... ... | 90 |
| Vingorla to Goa ... ... ... ... ... ... ... ... | 25 |
| Bombay to Bulsar ... ... ... ... ... ... ... ... | 125 |
| Baroda to Mhow ... ... ... ... ... ... ... ... | 175 |
| Poona to Jaulna ... ... ... ... ... ... ... ... | 180 |
| Quilon to Cochin ... ... ... ... ... ... ... ... | 88 |
| Cannanore to Mangalore ... ... ... ... ... ... ... | 85 |
| Mangalore to Coompta ... ... ... ... ... ... ... | 225 |
| Coompta to Dhurwar ... ... ... ... ... ... ... | 80 |
| Rajmahal to Patna ... ... ... ... ... ... ... ... | 180 |
| Miles ... ... | 1,401 |

not including branch lines from Masulipatam, Coringa, Cocanada, Vizagapatam, and Berhampore, to join the Madras Coast line.

32. Together with the lines thus noticed in detail, officers of the Indian Telegraph are entrusted with the construction of that in Ceylon, where the lines are up and at work from Galle to Colombo and Kandy, and at the last report were within 20 miles of our Indian terminus at Manaar. This in a month or six weeks will unite the Indian and Ceylon lines, and complete the vast network of electric wires extending from Galle to Peshawar, and from Kurrachee to Dacca.†

* Finished to Pertabgurh already, 30th October.

† The Ceylon lines have been completed this day, 29th October, and messages passed through between Point de Galle and Madras. Mr. B. C. Bailey, the Inspector in charge, deserves the highest credit for his successful performance of this duty.

32. Omitting the Ceylon lines, those above enumerated amount in all to

| | *Miles.* |
|---|---|
| Lines open up to 1856 ... ... ... | 3,756 |
| Do. in 1856 ... ... ... | 680 |
| From 1856 to present date ... ... | 2,719 |
| Under construction now ... ... ... | 2,154 |
| To be commenced and finished this season ... | 1,404 |
| Total Miles ... | 10,713 |

A rough sketch-map accompanies this Report. The solid black lines show the telegraph lines now completed, the broken blue lines those in actual progress, the dotted lines those sanctioned but not yet commenced.

33. A glance at this map will show that in a few short months, and subject chiefly to the restoration of general peace, telegraphic correspondence all over India will be practically exempt from all interruptions, so many different routes will be opened up by which a despatch may be forwarded to a given place. This inestimable object will be gained by the "single wire" system, and by avoiding the objectionable practice of placing several lines of wire on the same posts. Thus, instead of placing two wires on the same posts from Bombay to Indore, a totally distinct line is led from Bombay, by the coast, to Surat, taken on to Broach and Baroda, and thence to Indore. Both side lines are again joined by a cross line from Bulsur to Nassick. It is obvious that this plan almost nullifies the chances of interruption. It further enables us to dispense altogether with *insulation* on the *long* single lines, as the experience gained on the 7,000 miles now in operation shows that even the Morse instruments can be worked during the heaviest rain at longer distances than the average intervals required between the stations, which must be maintained for commercial, political, and military purposes.

34. The great advantage is further gained of bringing numerous and important towns and military stations within telegraphic communication, which otherwise must be excluded. This is done at the cost of the additional posts only, about 200 Rupees per mile, and with but a very small addition to our establishment, because, by reducing the extreme pressure of work from one line, by its business being shared by another, a smaller number of signallers is sufficient in each office. Lastly, when two or more lines lead by different routes between places of great importance, say Calcutta and Bombay, it will be found that despatches will reach their destination in half the time at present required.

35. It is obvious that if we were to adopt the system of placing *numerous* wires on the same posts, in the way this is done in England, any great injury to the line, such as those occurring daily from landslips, floods, hurricanes, and thunderstorms, would cut off at once *all* the channels of communication. Accidents and interruptions from contact of the numerous wires would be common, confusion of signals would prevail whenever spiders' webs, wasps' or birds' nests, escaped the vigilance of lazy native line-patrols, and the same result must necessarily happen in wet weather, unless a more perfect system of electrical insulation were available than any hitherto contrived.

36. For these, and many other reasons, I adhere to the opinions I have long since formed on this subject, founding these on experiment and observation now continued for more than twenty years, and with such extensive opportunities for gaining practica knowledge as no other individual has ever enjoyed: the results I have arrived at are exceedingly disagreeable to the persons employed in this country as the agents for the sale of telegraph stores, for the benefit of English contractors; by these gentlemen I am frequently assailed in terms of coarse vituperation,—an inconvenience I can afford to treat with much good humour, as I am persuaded such abuse does not injure the character or standing of any public officer in the opinion of those whose opinion is alone worthy of regard.

37. Whenever local circumstances render it unavoidable to use two or more wires on the same standards for *short local* lines, we have succeeded most completely this season in avoiding most of the causes of *confusion* above specified, and this without deviating in any material degree from the plans described in my "Manual" published in 1853. A report on this subject from Mr. Owen, the Deputy Superintendent at Bombay, is herewith forwarded, showing the success with which a *triple* line has been worked all through this rainy season between Bombay and Matheran, distance 65 miles. That the same system failed before in the hands of one of the former Deputy Superintendents, proceeded solely from the clumsy and negligent way in which it was applied. It would seem that the gentleman alluded to did not desire that any plan but that of the English telegraph lines should succeed in this country.*

38. In connection with this subject, I am glad to state that I have just completed a series of experiments on insulation, which place at our disposal a simple and cheap contrivance of great mechanical strength, by which absolute electrical insulation is obtained. I reserve the details descriptive of the construction and uses of this insulator for publication in the second edition of my *Manual*, now in the press. I am happy to say that all the materials for its manufacture on any scale being available in every bazaar in India, we shall be rendered altogether independent in future of the manufacturers of insulators in England, and of their agents in India.

39. There are many other matters of detail which may be more appropriately discussed and illustrated in the *Manual* than in this Report: I shall accordingly touch but briefly here on the points referred to:

These are chiefly the

*Guage of wire,*
*Comparative value of different kinds of standards,*
*Subterranean lines and River-crossings.*

40. *Guage of wire.* On this head it suffices to state here that all the great lines having been provided with the heavy wire No. 1 Birmingham Guage, wt. ½ a ton per mile, all the transverse and connecting and local lines will be made either with No. 8 Guage, wt. 438 lbs. per mile, or with copper wire, $\frac{1}{12}$ inch in diameter. Copper wire has

* The melted cement, without which the insulators referred to must be useless, was not employed: and caps and brackets were placed on angle posts where their use was prohibited, and where they must have failed.

proved very serviceable in the temporary restoration of communication on damaged lines when iron wire could not be quickly procured. Copper wire is, however, so eagerly sought after by the natives, that no line so constructed could be permanently kept up except in the immediate vicinity of the large stations.

41. *Different kinds of Standards for Permanent Lines.*—TIMBER. The *iron wood* from Arracan has proved the best of all, resisting ordinary causes of decay, white-ants, dry-rot, &c., and proving, as already stated, too heavy, hard, and incombustible, to be injured or destroyed in times of disturbance. Every possible effort should be made to secure a large supply of this timber from Arracan.

42. The *Teak* posts used in the Bombay presidency have stood well, and suffered little from ants.

43. The *Mutty* wood (a *Terminalia)*, plentiful and cheap in the Concan and along the Malabar coast, has also stood well, and will be very largely employed in the new lines.

44. The MASONRY PILLARS with stone caps, used commonly in the Madras Division and between Hyderabad and Bellary, have also succeeded well. If a perfectly straight alignment be preserved, so that the wire exercises only a direct vertical pressure, and no lateral strain, then capped masonry pillars are excellent. But in case of any accident on the line, they readily give way and cause much trouble: much fraud has been practised too on many of the lines, lime having been very commonly omitted from the mortar, and mud used instead. The comparatively great expense is moreover a serious objection, as the rates are never below 16 Rs. and commonly reach 24 Rs. per pillar, (See memo. annexed).

Masonry pillars erected in Central India.

| | | Cost. | | |
|---|---|---|---|---|
| 213 | ... ... ... | 3,469 | 1 | 2 |
| | One of a larger size included | | | |
| 200 | ... ... ... | 4,132 | 10 | 1 |
| 791 | (and foundations) ... ... | 11,648 | 2 | 0 |
| 195 | Pillars ... ... ... | 2,618 | 7 | 7 |
| 49 | ditto and foundations ... | 0 | 0 | 0 |
| 19 | ditto ... ... ... | 899 | 2 | 4 |
| 62 | ditto ... ... ... | 875 | 14 | 7 |
| 1,349 | ditto ... ... ... | 28,413 | 9 | 0 |
| 194 | ditto ... ... ... | 2,910 | 0 | 0 |
| 1,481 | ditto ... ... ... | 23,167 | 8 | 0 |
| | Including 7620 cubic feet extra foundation. | | | |
| 4,553 | | 78,134 | 6 | 9 |
| | Average price ..... Rupees | 17 | 6 | 1 |

45. IRON POSTS.—*(Hamilton's Patent.)*—These are of two descriptions, whole and half standards: of the former 20,000 are now being distributed along the Sindh and Bombay and Sindh and Punjab lines. Mr. Smith, the Deputy Superintendent, reports that those hitherto erected "are as firm as rocks," and all that could be desired. The half standards, 20,000, are being used in Bengal (where Mr. O'Donnell also reports very favorably on those erected under his directions) and also along the Madras Coast, where unfortunately they have hitherto fallen into bad and dishonest hands. In the use of these posts, all depends on their being filled with melted cement, exactly in the manner described in the printed "Instructions" forwarded with this Report. It has however been discovered by Mr. Mayes that while heaps of rosin were lying on the roadside at Rajamundry, exposed to the sun and rain, and to the depredations of the Villagers, the half iron posts were

filled by the Inspectors and artificers with cowdung, loose sand, or black mud. Had this not been detected, we should some years hence have found these standards condemned as "failures" in official Reports. Nearly the whole of those erected on the Madras coast must be taken down, and re-erected, in order not only that they should have a fair trial, but that the public service should have the benefit of their valuable properties.

46. These standards are so minutely described in the Instructions issued from my office in February last, that I shall only add that their original cost is in England

| | Rs. | As. | P. |
|---|---|---|---|
| Whole standard ... ... | 13 | 0 | 0 |
| Half ditto ... ... | 9 | 4 | 0 |
| *Cost of filling with cement* | | | |
| Whole standard ... ... | 1 | 0 | 0 |
| Half ditto ... ... | 0 | 8 | 0 |

Their durability can only be determined by prolonged trial. The Deputy Superintendents of the Circles in which these posts are employed are directed to send in half-yearly reports on this subject.

47. *Subterranean Lines.*—Several short subterranean lines were laid between 1854 and 1856, chiefly in the immediate vicinity of the offices, and in thoroughfares in the large towns. The Gutta Percha wire employed was manufactured by Mr. Statham in London, the maker of the wire used in the Atlantic Telegraph Cable. It was served with tarred yarn or cloth, in India, and laid in trenches two feet deep with external protectors of several different kinds.

48. Early in 1855 it was discovered that all the stock in hand was undergoing rapid deterioration, the Gutta Percha becoming brittle, and scaling off the wire. An exact analysis made at my request of the altered Gutta Percha by Professor Hoffman of London, showed that the Gutta Percha had absorbed oxygen, increased in weight about 27 per 100, and been changed from its normal composition to that shown in the margin. It had in fact been converted into a resin quite useless for telegraph lines.

| *Unaltered Gutta Percha.* | |
|---|---|
| Carbon ... ... | 88.10 |
| Hydrogen ... ... | 12.40 |
| | 100.50 |
| *Altered G. P.* | |
| Carbon ... ... | 62.79 |
| Hydrogen ... ... | 9.29 |
| Oxygen ... ... | 27.92 |
| | 100.00 |

49. To obviate the occurrence of this change, whenever subterranean lines may be found absolutely necessary, I have carried out a series of experiments on a large scale in London, the results of which are minutely described in the "Instructions," and illustrated with drawings to scale, for which I am indebted to the skilled pencil of my assistant Mr. Blissett. I have no doubt whatever of the success of this new system, wherever the details of its execution are faithfully followed out, and the manipulation performed with due mechanical skill. Should it however fall into the hands of careless

workmen, loose sand or cowdung or black mud be used in the tubes instead of the preservative cement, then the lines must fail; and, as with the iron posts, the failure be attributed to error or neglect on the part of the proposer of the plan.

50. *River Crossings.*—The past year presents a long list of damaged cables, masts, and piers, proceeding in most cases from sudden inundations, and the consequent shifting of the courses of rivers, and the destruction of their banks. The line suspended across the Indus at Attock, the cables across the Chenab, Beas, Sutlege, and Taptee at Surat, the Penaur at Nellore, Kistna near Kurnool, Godavery at Rajmundry, and the branch of the Mahanuddee at Cuttack, have all been destroyed in this manner. The cable at the Chumbul was cut to pieces by the rebels during the dry season.

51. The lines suspended on piers and obelisks over the Nerbudda at Akberpore, the Kistna between Bellary and Kurnool, and the Nerbudda at Broach, were swept away by the rivers rising from 30 to 56 feet in 24 hours, and roots of trees becoming entangled in the wire. The piers and obelisks at the Nerbudda and Kristna have, however, escaped harm, and the wire has been replaced within the last few days across all the rivers in question.

52. The cables across the Ganges at Benares, and the Indus at Hyderabad, have been destroyed by the anchors of steamers.

53. The destruction caused by the shifting of the beds of rivers cannot be prevented. The breaking of suspended lines during floods may be guarded against to a great degree by erecting more lofty obelisks and masts during the ensuing dry season. Wherever it may be practicable to find narrower crossings than the present, by carrying the lines higher up the river banks, this will be done. Piers on well foundations will be built wherever the beds of rivers become, like that of the Markinda, quite dry for several months together.

54. A line having been maintained during the worst months of this year* across the Ganges at Gurmucktesur Ghaut, suspended on the masts of a row of boats, the hint will be followed up, and masts floated on solid catamarans, and moored by chains and anchors, be provided on such rivers as resemble the Ganges at Gurmucktesur as regards width, depth, and velocity of current.

55. Such are the chief practicable steps to obviate the formidable difficulties of the very numerous river crossings. When these expedients fail us, this happens at a season when for many days no boats can pass, and mails and messages are alike cut off. At such times signallers have to bivouac on the banks of rivers in the most unhealthy of all localities, exposed alternately to fierce heat and drenching rain, with scanty or bad provisions: away from medical aid or ordinary protection. While I write, this is the case, or has been within the last few days, at eleven different rivers, necessitating the existence of twenty-two of these make-shift offices, worked under such circumstances as render either accuracy or despatch almost impossible.

* By Captain Murray and Mr. Naylor.

56. The erection of Semaphore towers on each bank of the most precarious rivers naturally suggests itself, but the snail's pace at which the Semaphore works, even in the most expert hands, renders it but a poor auxiliary to our lines. A better expedient is in reserve, which I have just worked out experimentally on the lake of Ootacamund. I have long since ascertained that two naked, uncoated wires kept a moderate distance, say 50 to 100 yards apart, will transmit electric currents to considerable distances sufficiently powerful for signalling with needle instruments. I have worked this out last month to the length of more than two miles, on the needle. The facility with which naked wire ropes can be led across rivers, even in flood, or buried or sunk with heavy weights attached during the seasons of shallow water, renders the application of the experiments referred to, an easy mode of providing for the casualties under notice. So that should it become necessary again to open temporary offices on the banks of rivers, it will at all events be easily practicable to telegraph by the needle from bank to bank, and to be thus independent of communication by boat.

57. As it has been hinted by officers employed in this department, that our river lines have failed through an objectionable plan of construction of the cables, I need only point to those laid in 1853 across the Soane, Channel Creek, and the Ganges at Allahabad, and in other localities, to show that where the rivers kept in their wonted courses, and no steamers dropped anchors on the lines, our cables have held as well as those across the Straits of Dover or elsewhere. Where the instructions are honestly followed, our cables will stand comparison with any manufactured in England. I should not omit, however, that in order to accelerate the completion of the vast lines described in a former page, I have had one hundred miles of cable manufactured by Messrs. Glass and Co., makers of half the Atlantic line, and Messrs. Henley and Co. of Greenwich; of this stock, 23 miles have just been placed across the Gulf of Manaar, and some 20 more have been issued for the great rivers of the East Coast and Dacca line.

58. I trust it will appear from the statements thus detailed, that every possible expedient which forethought and study of the difficulties to be encountered could suggest has been and shall be adopted, and that when failures occur, these are to be attributed less to neglect or mismanagement, than to obstacles of an insuperable kind.

59. *Offices now open.*—I have next to enumerate the offices now open, and about to be opened, on the lines under construction, or the construction of which has been sanctioned by Government.

## LIST OF OFFICES NOW OPEN.

### BENGAL.

* *M.*

#### RIVER STATIONS.

| | | | |
|---|---|---|---|
| | Calcutta | | |
| | Diamond Harbour | | |
| | Atcheepore | | |
| | Hooghly Point | | |
| | Mud Point | | |
| | Saugor Island | | |
| | Kookrahattee | | |
| | Kedgeree | | |
| | Barrackpore | | |
| | Burdwan | | |
| | Rajmahal | Opened in 1856. | |
| | Bhaugulpore | | |
| | Monghyr | | |
| | Patna | | |
| | Raneegunge | | |
| *M.* | Burhee | | |
| *M.* | Sherghotty | | |
| | Sasseram | ... | 1858. |
| *M.* | Benares | | |
| *M.* | Mirzapore | | |
| | Jessore | | |
| | Furreedpore | | |
| | Dacca | | |
| *M.* | Balasore | ... | 1858. |
| 25. *M.* | Cuttack | | |

#### N. W. PROVINCES AND PUNJAB.

| | | | |
|---|---|---|---|
| *M.* | Allahabad | | |
| | Pertaubghur | ... | 1858. |
| *M.* | Futtehpore | | |
| *M.* | Cawnpore | | |
| | Lucknow | | |
| | Calpee | ... | 1858. |
| *M.* | Futtehghur | ... | 1857. |
| | Mynpooree | | |
| *M.* | Agra | | |
| *M.* | Allyghur | ... | 1857. |
| *M.* | Delhi | | |
| | Meerut | | |
| | Moradabad | ... | 1858. |
| | Bareilly | ... | 1858. |
| | Kurnaul | | |
| | Umballa | | |
| | Loodiana | | |
| | Phillour | | |
| | Jullundur | | |
| | Umritsur | | |
| | Lahore | | |
| | Jhelum | | |
| | Rawul Pindee | | |
| | Attock | | |
| 25. | Peshawar | | |

#### INDORE CIRCLE.

| | | | |
|---|---|---|---|
| *M.* | Gwalior | | |
| *M.* | Seepree | | |
| | Goona | | |
| | Beowra | | |
| *M.* | Indore | | |
| *M.* | Mhow | ... | 1857. |
| 7. | Akberpore | | |

#### BOMBAY CIRCLE.

| | | | |
|---|---|---|---|
| *M.* | Dhoolia | | |
| *M.* | Maligaum | | |
| *M.* | Nassick | | |
| | Thanna | | |
| *M.* | Bombay | | |
| | Surat | ... | 1857. |
| | Barcach | | |
| | Baroda | | |
| | Kaira | ... | 1858. |
| | Deesa | | |
| *M.* | Malabar Point | | |
| *M.* | Parell | | |
| *M.* | Matheran | ... | 1858. |
| *M.* | Poona | | |
| *M.* | Dapoore | | |
| *M.* | Sattara | | |
| | Mahabaleshur | | |

* The stations marked *M.* are provided with *Morse* instruments.

LIST OF OFFICES NOW OPEN—*(Continued.)*

| | | | |
|---|---|---|---|
| *M.* | Kolapore | | |
| *M.* | Belgaum | | |
| | Sawunt Warree | ... | 1858. |
| | Vingorla | | |
| *M.* | Dharwar | | |
| 23. *M.* | Gudduck | | |

MADRAS CIRCLE.

| | | | |
|---|---|---|---|
| *M.* | Bellary | | |
| *M.* | Seera | | |
| *M.* | Bangalore | | |
| *M.* | Mysore | | |
| *M.* | Ootacamund | | |
| | Mercara | | |
| | Cannanore | | |
| | Calicut | | |
| | Cochin | ... | 1858. |
| *M.* | Vellore | | |
| *M.* | Madras | | |
| | Mount | | |
| | Guindy | | |
| | Poonamallee | | |
| *M.* | Pondicherry | | |
| | Negapatam | | |
| | Podoocottah | | 1858. |
| | Paumbaun | | |
| 19. | Manaar | | |

EAST COAST.

| | | | |
|---|---|---|---|
| *M.* | Nellore | | 1858. |
| *M.* | Beizwarrah | | |

| | | | |
|---|---|---|---|
| *M.* | Dowleisharam or Rajamundry | | |
| *M.* | Vizagapatam | | 1858. |
| | Chiccacole | | |
| 6. *M.* | Chutterpore or Ganjam | | |

CENTRAL INDIA.

| | | | |
|---|---|---|---|
| | Kurnool | | |
| | Hyderabad | | |
| | Secundrabad | | |
| 4. | Sooriapett | ... | 1858. |

SCINDE.

| | | | |
|---|---|---|---|
| | Kurachee | ... | 1857. |
| | Memaree | | |
| | Gizree | | |
| | Kotree | ... | 1858. |
| | Hyderabad | | |
| | Budeena | | |
| 7. | Nuggur Pakur | | |

PEGU.

| | | | |
|---|---|---|---|
| | Rangoon | | |
| | Pegu | | |
| | Shoeghyeen | | |
| | Tonghoo | | |
| | Henzada | | |
| | Menghye | | |
| | Prome | | |
| 9. | Meaday | | |
| | Thyetmoo | | |

60. The above are the offices, 125, actually open to the public, or which will be open before this Report is submitted.

61. Offices to be opened within the next season (25)

| | |
|---|---|
| Midnapore | Jacobabad |
| Chittagong | Bulsar |
| Akyab | Rutnaghery |
| Fyzabad | Seroor |
| Mooltan | Ahmednuggur |
| Sukkur | Jaula Goa |

LIST OF OFFICES NOW OPEN—*(Continued.)*

| | | | |
|---|---|---|---|
| Compta | | | Vizianagram |
| Honore | | | Ongole |
| Mangalore | | | Trivandrum |
| Coringa | | | Nagpore |
| Masulipatam | | | Seonee |
| Cocanada | | 25. | Jubbulpore |
| Berhampore (East Coast). | | | |

Being in all 150 offices for the working of 10,700 miles of line, which, excluding the river stations and the local stations kept up for the convenience of the Governors of Presidencies, and offices on short double lines (in all 16), gives 134 offices on the main lines of communication.

## CASH RECEIPTS, AND VALUE OF SERVICE MESSAGES.

62. The amount of cash receipts and value of service messages from November 1856 to the 1st October 1858, are shown in gross as follows. I omit details, which are better exhibited in a tabular form in the usual office reports :

| | Cash. | Service. | Total. |
|---|---|---|---|
| 1856. | | | |
| November ... ... ... ... ... Rs. | 18,288 | 5,177 | 23,465 |
| December ... ... ... ... ... „ | 22,704 | 7,714 | 30,418 |
| 1857. | | | |
| January ... ... ... ... ... ... ... „ | 26,773 | 12,677 | 39,450 |
| February... ... ... ... ... ... „ | 24,364 | 9,618 | 33,982 |
| March ... ... ... ... .. ... „ | 24,642 | 12,017 | 36,659 |
| April ... ... ... ... ... ... „ | 26,888 | 11,156 | 38,044 |

63. Thus the cash business had increased from Rupees 18,288 in November 1856 to Rupees 26,888 in April 1857. The service messages had risen from Rupees 5,177 to Rupees 11,156. In May the storm burst, and in the following month we observe its

effects on our returns, diminishing the cash receipts and largely increasing the value of the service despatches.

| | Cash. | Service. | Total. |
|---|---|---|---|
| 1857. | | | |
| May ... ... ... ... ... .. Rs. | 21,224 | 27,693 | 48,917 |
| June ... ... ... ... ... ... „ | 8,063 | 20,121 | 28,184 |
| July ... ... ... ... ... ... „ | 7,604 | 21,370 | 28,974 |
| August ... ... ... ... ... ... „ | 8,585 | 22,180 | 30,765 |
| September ... ... ... ... ... „ | 11,395 | 19,912 | 31,307 |
| October ... ... ... ... ... „ | 12,892 | 20,012 | 32,904 |
| November ... ... ... ... ... „ | 11,038 | 19,981 | 31,019 |
| December ... ... ... ... ... „ | 15,777 | 29,433 | 45,010 |

64. A marked increase has now again commenced in the cash receipts, owing to the gradual restoration of confidence, and the re-opening of some of the lines. The service despatches were at the same time largely augmented on account of the military operations in the North-Western Provinces and Oude, thus :—

| | Cash. | Service. | Total. |
|---|---|---|---|
| January ... ... ... ... ... ... Rs. | 16,397 | 26,671 | 43,068 |
| February... ... ... ... ... ... „ | 17,407 | 25,550 | 42,957 |

65. The Madras coast line was by this time available, and the line to Agra and the Punjab was restored. The receipts again show a steady increase :—

| | Cash. | Service. | Total. |
|---|---|---|---|
| March ... ... ... ... ... ... Rs. | 18,680 | 25,141 | 43,821 |
| April ... ... ... ... ... ... „ | 19,380 | 24,467 | 43,848 |
| May ... ... ... ... ... ... „ | 22,259 | 33,477 | 55,736 |

66. The Madras coast line broke down in June, and the cash receipts fall accordingly, thus:—

| | Cash. | Service. | Total. |
|---|---|---|---|
| June ... ... ... ... ... ... Rs. | 18,997 | 29,931 | 48,928 |
| July ... ... ... ... ... ... „ | 15,495 | 22,734 | 38,229 |
| August ... ... ... ... ... ... „ | 17,174 | 24,022 | 41,196 |
| September ... ... ... ... ... „ | 16,506 | 26,133 | 42,639 |

67. The returns of receipts for this month, October, will doubtless show a considerable increase, in consequence of the line between Agra and Bombay having been restored. By January next, when both the Coast and Agra lines will once more be in full efficiency, I have no doubt of the cash receipts amounting to at least 30,000 Rupees for the month.

68. What the lines are capable of earning at the present tariff, is a question of much interest, and one easily answered.

69. Working with the Morse instruments, at the minimum rate of 8* words clear per minute and for only 12 hours each day, 30 messages of 16 words each can be cleared off in one hour. Say 360 messages or Rupees for one working day, for a single section of 400 miles, or Rupees 10,800 per month.

70. Now, in a very few months there will be more than 25 such sections in operation, capable of transacting business to the monthly value of Rupees 2,70,000.

71. As the object of the Government as regards the revenue of this Department may be reasonably assumed to be simply the liquidation of all expenses, and as the expenses will assuredly diminish instead of increasing, it is clear if the lines were *fully* employed, Government could afford to *reduce the tariff of charges to one-third of the present scale*. Reductions must of course precede the state of "full employment," but this will be much more certainly brought about by rapid and accurate work, and above all by the offices obtaining the confidence of the public as regards the inviolable secrecy of messages. This once gained, the telegraph will enter into competition with the post, and every transaction in which the gain of a day's time is of any value, will most certainly be confided to our lines. The native community especially may be looked to as the sources of an amount of business almost beyond limit, and of all our customers the native bankers and merchants are by far the most confiding and liberal. I regret that I am unable to state in this Report with the exactness which is desirable the proportion of all messages now sent by natives and Europeans respectively; of *business* messages, those

* NOTE.—Not half the actual rate of our good hands.

sent by natives are certainly in large excess. In a very short time I hope to have the returns from all offices sent in with the regularity of former years, so that in my next Report I may exhibit all these details with absolute precision.*

72. The irregularities still prevailing in several of the offices also render it impracticable for me to show satisfactorily in this report the existing proportion of errors in our messages. This also must be reserved for another time, but I am glad to say that the proportion of errors, complaints, and refunds, is very low and is daily becoming less. In a few months more an error will be a very rare occurrence.

*IV.—Total Establishment of all grades, entertained for Lines and Offices.*

73. When the plan proposed by Lord Dalhousie for the establishment of a general system of Telegraphs in India was submitted to the Honorable Court of Directors in 1853, the effective ultimate organization of the Establishment required for construction and working of 4,000 miles of line then sanctioned, was felt to be dependent on the experience gained in the progress of the works. But, for the length of line then ordered, the following *minimum* establishment was provided, to be altered or increased as circumstances might demand:

| | | | |
|---|---|---|---|
| 1 | Chief Superintendent... | Salary not fixed by the Court. | |
| 4 | Deputy Superintendents, one for each Presidency— | | |
| | Bengal ... | At Rs. 500 each. | |
| | N. W. Provinces ... | | |
| | Madras ... | | |
| | Bombay ... | | |
| 6 | 1st Class Inspectors, @ Rs. 250 | Rs. 1,500 | |
| 28 | 2nd Class Inspectors, @ Rs. 150 | „ 4,200 | |
| 28 | 3rd Class Inspectors, @ Rs. 100 | „ 2,800 | |
| | | Rs.... 8,500 | |

These salaries were independent of travelling allowances or house-rent.

74. There was also provided in 1853 a body of 60 enlisted artificers trained at Warley, and 12 more were sent out in 1857, in all 72 men, whose pay was fixed by the Government of India at 68-12-6 per month, with horse allowance of 30 Rupees when employed on the lines in actual construction duty.

75. For the lines originally proposed, this establishment has been found to answer fairly, except that it became absolutely necessary to increase the number of *first* Class

---

* NOTE.—A good illustration of the proportion of the messages sent by *Natives* and *Europeans* is given by the work of one Office only, that of Bombay, on the 15th October—last report received:

| | | |
|---|---|---|
| Number of paid messages ... ... ... ... | ... | 78 |
| Do. of service do ... ... ... ... | ... | 27 |
| Messages from Natives ... ... ... ... | 53 | |
| Do. Europeans ... ... ... ... ... | 25 | |
| | 78 | |

Inspectors from time to time. It may be stated as a general result of the experience gained in working the lines, that a first Class Inspector is absolutely necessary for every 400 or 500 miles of line,* in which he exercises control over four to eight offices and over all persons employed on the line. The increase in the number of 1st Class Inspectors was made without any augmentation of expense, as the grade of 2nd Class Inspector was found to be less important, and its number has been accordingly kept much below the authorized scale.

* Say 20 first Class Inspectors for 10,000 miles.

76. Before the completion of the original lines, an additional circle was formed for Pegu, for which a Deputy Superintendent of the 3rd Class on 300 Rs. was appointed (Mr. Wickham), with additional Inspectors and artificers.

77. In 1855, a line was suddenly ordered to be made from Bangalore to Mysore and Ootacamund, and prolonged in 1856 to Mercara, Cannanore, and Calicut, for which there were entertained—

| | | |
|---|---|---|
| 1st | Class Inspector ... ... | 1 |
| 2nd | ditto ... ... ... | 1 |
| 3rd | ditto ... ... ... | 1 |
| Artificers | ... ... ... | 2 |

78. The next extension directed was the Central India line from Bellary to Kurnool, Hyderabad, Nagpore, Jubbulpore, and Mirzapore, over 600 miles, with a branch to the East Coast at Beizwarrah, 167 miles, for which were sanctioned—

| | | |
|---|---|---|
| 1 | Deputy Superintendent, 3rd grade, Mr. Mayes. | |
| 2nd | Class Inspectors ... ... | 2 |
| 3rd | ditto ... ... | 6 |
| Artificers | ... ... ... | 6 |

79. Next in order came the Ceylon line, which it was arranged by the Ceylon Government should be constructed and officered by the Indian Telegraph Department. This establishment being paid by the Ceylon Government, is not included in the returns now furnished. It consists of one first Class Inspector, one second ditto, and two third Class Inspectors and Artificers taken from the Indian lines.

80. To connect Ceylon with the Indian system, a line was ordered from Madras to Ramnad and Paumbaun; for this there were sanctioned—

| | | |
|---|---|---|
| 1st | Class Inspector ... ... | 1 |
| 3rd | ditto ... ... ... | 2 |
| Artificers | ... ... ... | 4 |

81. In July 1857, the Court of Directors ordered the construction of over 3,000 miles of new lines, to join Madras and Calcutta by the Coast, Bombay and Kurrachee by Deesa, Kurrachee and Lahore by Hyderabad and Mooltan, and Calcutta and Akyab and Prome by Dacca.

82. The exceeding urgency for the rapid construction of the Coast and Kurrachee lines rendered it a matter of inevitable necessity to arrange for the requisite superintendence by transfers and promotions, and new appointments, in some instances without waiting for formal sanction.

There were however appointed in India—

1 Deputy Superintendent for Dacca or Eastern line.
1 ditto for Madras Coast line.
1 ditto for line from Kurrachee to Lahore.
1 ditto, Officiating for Punjab and N. W. P.
1 Deputy Superintendent of Telegraph in *India*, as second in the Department (absent on sick leave in Europe).

For the line from Kurrachee to Bombay were sanctioned—

| | |
|---|---|
| 1st Class Inspectors ... ... | 2 |
| 2nd ditto ... ... ... | 0 |
| 3rd ditto ... ... ... | 4 |
| Artificers ... ... ... | 8 |

From Kurrachee to Lahore—

| | |
|---|---|
| 1st Class Inspector ... ... | 1 |
| 2nd ditto ... ... ... | 1 |
| 3rd ditto ... ... ... | 4 |
| Artificers ... ... ... | 12 |

83. I do not find on record in the correspondence in this office, formal sanction for the precise number of Inspectors and Artificers to be employed on the *East Coast line*, but the appointment of the required number is doubtless generally included in the order to "take all requisite steps for construction and completion of the line in question."

84. The smallest number of Inspectors sufficient for this line, is in the Cuttack Division.

| | |
|---|---|
| 1st Class Inspector ... ... ... | 1 |
| 3rd ditto ... ... ... ... | 3 |
| Artificers ... ... ... ... | 3 |

85. In the Vizagapatam Division—

| | |
|---|---|
| 1 Class Inspector ... ... ... | 1 |
| 2 ditto ... ... ... ... | 1 |
| 3 ditto ... ... ... ... | 2 |
| Artificers ... ... ... ... | 3 |

86. In the Beizwarra Division—

| | |
|---|---|
| 1st Class Inspector ... ... ... | 1 |
| 3rd ditto ... ... ... ... | 3 |
| Artificers ... ... ... ... | 3 |

87. I am glad to report that by the arrangements made in promoting persons already in the Department, the cost of the present establishment of Inspectors has not been increased in a degree proportionate to the increased extent of the lines, thus—

Establishment of Inspectors of all grades, employed in 1853 for 4,000 miles Rs. 8,500
" " " " " 1858 for 10,700 " 10,400
Increase in miles, 6,700 in cost Rs. 1,900

88. The annexed Table gives the roll of Deputy Superintendents and of Inspectors of all grades as it stands at this date; some increase will be required in the 3rd class grade, but this shall be accomplished in all cases by the promotion of artificers of tried skill and activity; but above this grade it has been made the rule of the Department that no promotion shall be given to any one who has not a perfect knowledge of the MORSE instruments and system.

89. The General List and Supplement show at present the following establishment in the several grades:

| | | |
|---|---|---|
| Superintendent ... ... ... ... | 1 | |
| Deputy Superintendent in India ... | 1 | Absent on sick furlough. |
| Deputy Superintendents of Circles ... | 6 | Two absent on sick leave. |
| Offg. Deputy Superintendents on probation | 5 | |
| Being 10 Deputy Superintendents effective and on duty | | |

INSPECTORS.

| | | |
|---|---|---|
| 1st Class ... ... ... ... | 17 | Will have to be increased to 20. |
| 2nd ditto ... ... ... ... | 16 | |
| 3rd ditto ... ... ... ... | 38 | |

ARTIFICERS.

| | |
|---|---|
| European ... ... ... ... | 76 |
| Native ... ... ... ... | 19 |
| Assistants in charge of offices ... ... | 125 |
| Signallers, including the Morse ... ... } ditto, from England ... ... } | 255 |
| Probationers ... ... ... ... | 75 |
| *Doing duty in Offices.* | |
| Probationers under training in separate classes ... ... ... ... ... } | 80 |
| Line and Cable-Guards, Lascars, Watchmen, for 7,000 miles ... ... ... ... } | 724 |
| Servants and Peons, in 125 offices ... | 673 |
| Printers ... ... ... | 6 |
| Mechanics ... ... ... ... | 26 |
| Store-keepers, Accountants, Clerks, Writers | 118 |
| Total persons, | 2,242 |

of whom about 400 are employed on temporary duties on lines under construction, and will be discharged as these lines are finished.

*Section V.—Cost of all Lines and Offices.*

90. The total monthly cost of the whole of the establishment now entertained for regular working and construction for 10,700 miles, and 150 offices, is Rs. 63,427.

and Rent, Battery stores, Oil, Stationery, and special travelling is estimated at ... ... ... ... } Rs. 17,816

Total, Rs. 81,233 per month,

a sum which I have no doubt whatever will be fairly covered by the cash receipts of the offices, and the charges in account for service despatches, within twelve months after the whole system is completed, and the restoration of tranquillity enables the local authorities to protect the lines from injury. The correspondence between Calcutta and Point de Galle, and Kurrachee and Bombay, will most certainly add largely to our income. At present the cash receipts and charges on account for service messages, reach 5,000 Rupees per mensem,* leaving 25,000 Rupees per mensem as the cost of the political, military, and social advantages of the establishment to Government and the public. This is not half the cost of one Regiment of European Dragoons.

NOTE.—In 1856 the monthly charges for 4,000 miles of line and 64 offices amounted to 25,000, *not* including contingencies.

* When the Calcutta and Bombay lines are open. See Return for May last.

91. I shall have to return to the subject of offices and office discipline and organization in the sequel of this Report, but I must in the first place give a brief account of the steps taken and the degree of success already attained in the

*VII.—Introduction of the American or Morse system of signalling.*

92. When the arrangements were being made in England in 1853 for the construction of the Indian lines, one of the first questions which arose was by what instrument the offices should be worked. At that time several different systems were in actual use on a large scale in Europe and America, of which I well knew the American, of Morse, to be the best in every respect; but the clamour raised by patentees and inventors in England rendered it necessary to send out to India duplicate sets of every instrument then in use, or proposed on respectable authority, for fair competitive trial on the first through lines at our disposal. Meanwhile, a make-shift contrivance of my own, of a very cheap and simple kind, was brought into use *pro tempore*, as fast as our lines and offices were opened.

93. The experiments made from March 1854 to the same month in the following year, established beyond all doubt the immeasurable superiority of the Morse system. I reported this to Government, and in March 1856 I received orders to proceed to England to arrange for its introduction.

94. On my arrival in Europe, I found to my great satisfaction that at a telegraph congress of the Directors of nearly all the lines on the Continent of Europe, held in the preceding autumn, the Morse system had been unanimously adopted,* and the needle instruments of Cooke and Wheatstone, the Electric Semaphore of Breguet, as well as the telegraphs of Bain, House, Brett, and others, all finally rejected. Shortly after my arrival in England, I had the happiness of becoming personally acquainted with Professor Morse, then on his way to Russia. I take this opportunity of repeating what I have already stated to the Court of Directors and the Board of Control, how deeply I am indebted to Mr. Morse for the cordial and valuable aid and advice I have received from him in carrying out the preparations for the introduction of his system in India.

95. It having been ascertained that the best Morse instruments are manufactured by Siemens and Halske at Berlin, 80 instruments were at once ordered, and a class was formed at Gresham House, London, first of 40, subsequently increased to 74 young gentlemen, chiefly orphan sons of officers of the Indian army. The covenant under which these youths were entertained is given in the Appendix.

Cost of each, £28 =Rs. 280.

96. After six months' instruction the first detachments were sent out to Bombay, Madras, and Calcutta, in 1857, and they at once commenced teaching probationers at several stations. The result is, that we have now 45 Morse stations and over 200 persons, including those sent out from Europe, capable of sending and receiving signals by this system with the utmost accuracy, and with four to five times the rapidity that is practicable on the single needle instrument in the best hands.

97. The special advantages of the Morse instrument may be very briefly described—

It *writes* out the messages it receives in a character which any one can learn in a single day.

It *speaks* in such clear and intelligible language that it dictates its messages to the Clerks, who take down all it *says*, and this as fast as they can write.

It *repeats* automatically a message received from one station, and sends it on to the next with renewed electric power, thus sparing the labor and delay of repetition by signallers, and avoiding the errors which manual repetition often causes.

Whenever desirable, it drops a written copy of its messages simultaneously at every intermediate station on the way to its ultimate destination.

It does all this at a degree of speed from three to five times greater than that of the needle instrument of Wheatstone, or the electric semaphore of Breguet.

---

* The Morse instruments have now been adopted in

| | |
|---|---|
| France, | Russia, |
| Belgium, | Denmark, |
| Holland, | Sweden, |
| Sardinia, | Spain, |
| Switzerland, | Austria, and |
| All the Italian lines, | Turkey in Europe. |

The needle instruments are no longer in use except in England and on the Railway in India.

Lastly, without any special alarm apparatus it calls so loudly when a given station or signaller is required, that the necessity for watching the instruments or the alternative of using alarums is entirely obviated.

98. This admirable invention has been in full use in America for fifteen years, but been kept out of adoption in Europe till within the last two years by the jealousy and self-interest of rival inventors and patentees. It is not yet adopted in England, through the influence of the same causes, and it has been introduced in India in spite of their opposition.

99. I have awaited with the utmost anxiety the results of the working of the Morse offices during the rainy season just ended, in the Bombay circle, where my arrangements for its observation were the most matured and trustworthy. I am happy to report that the results are in the highest degree conclusive. Where the lines have been in good order, the heaviest rains have not affected the use of the instruments for a single day. Lightning has caused more interruption and injury than rain, but the introduction of a safety coil which I have contrived for the protection of the *instruments*, and which is described with drawings in the Appendix, has entirely overcome this cause of difficulty.

100. We accordingly want nothing now but about 200 more instruments, of which 100 have been applied for to Berlin, and 100 will be made in India, and also about 100 more trained signallers, now under instruction here, to bring the Morse system in full operation over all India and Ceylon. A few months more will accomplish this, and enable us to send a message of 100 words in ten minutes from Calcutta to Bombay, and from Galle to Peshawar with the most absolute certainty, and exemption from all ordinary causes of error and delay.*

101. The nominal roll of the Morse assistants from England is appended. On two points connected with this branch of our Department, I desire to offer some explanatory remarks.

102. In proposing the Morse system for the consideration of Government in 1855, I undertook to introduce it without adding in any important degree to the general expenditure of the whole Department, by proceeding on the principle of appointing the Morse assistants according to their capacities to such vacancies in the superior grades of the general establishment as would necessarily be filled by other persons had the Morse assistants never been introduced. That this has been done with full practical success is shown in the accompanying Table.

103. The total number of Morse assistants is 71,† of whom the total salaries drawn are Rupees 11,125 (Rs. 10,915 on 30th October).

---

* *Para.* 109.—The Morse system is now fully established on the lines from Calcutta to Agra, Agra to Bombay, Bombay to Madras, Madras to Calcutta, Bangalore to Ootacamund, Madras to Pondicherry, and provision is made for its immediate extension to Delhi.
All other lines will be supplied as instruments arrive from Europe, or can be made in India.

† Omitting Mr. Sellon gone home, and Brooke killed at Indore.

| | | | |
|---|---|---|---|
| Of these, are now employed as Officiating Deputy Superintendents ... ... ... | 3 at 400 = | Rupees | 1,200 |
| Officiating 1st Class Inspectors ... ... | 7 at 250 = | „ | 1,750 |
| Officiating 2nd Class do. ... ... | 8 at 150 = | „ | 1,200 |
| Officiating 3rd Class do. ... ... | 1 at 100 = | „ | 100 |
| Assistants in chargs of Offices* ... ... | 18 = | „ | 2,670 |
| Employed as Signallers 30 in lieu of others who must have been employed at 75 ... ... | 30 at 75 = | „ | 2,250 |
| In Printing Department ... ... ... | 1 at 100 = | „ | 100 |
| | Total Rupees ... | | 9,270 |

* 18 on 30th June.
21 on 30th October.

104. That this has been accomplished without injustice to the older establishment is thus shown:

Of seven recent promotions to the grade of Deputy Superintendent, three were awarded to Morse assistants, and four to Messrs. Nowill, Todhunter, Mayes, and Smith, of the old establishment.

Of seventeen first class Inspectorships, seven are held by Morse assistants and 10 by old assistants.

Of 16 second class Inspectorships, eight are held by Morse, eight by others.

Of 40 third class Inspectorships, one only is held by a Morse assistant, while as regards offices 22 are held by Morse assistants, and 103 by assistants formerly employed.

105. On the general conduct of the whole body of the Morse assistants, I am happy to be able to report in the most favorable terms. When the class was established in London, they were informed by myself publicly in presence of the Chairman of the Court of Directors, and a deputation of that body, and the same instruction was repeated by printed notices suspended in the class room, that they must look in India to some years of hard work on small pay, not exceeding 100 Rupees per mensem, often in solitary and unhealthy stations, and they were warned that those who did not choose to accept this life had better remain at home. I especially cautioned some three or four young gentlemen who I knew were indulging in visionary notions of "the East," as to what their condition probably would be. Under this warning they came to India, and with what success collectively, the preceding numbers and facts sufficiently demonstrate.

106. Of the whole body I cannot speak too highly. The exceptions are indeed few. One gentleman has proved useless from singular eccentricity of habits; two, laboring under fancied grievances give trouble by anonymous scribbling in the newspapers; and some five or six are wild lads who will doubtless soon tame down and become steady and useful. Everywhere, with one or two exceptions only, they have obtained and kept the position they are entitled to as gentlemen of good birth and education, and there can be no doubt but that simply through good conduct and the force of superior ability, attainments, and knowledge of their duties, the whole class will become, in due time, what they were from the first intended to be, the staff of officers for the Telegraph all over India.

## SECTION VIII.

This is perhaps the most convenient place to treat briefly of some points affecting the general working of our offices.

107. When I went to England in March 1856, the offices were in such a state of efficiency, that the mail bulletins always reached Calcutta from Bombay in less than six hours—often within one hour; night calls were promptly answered, and exact copies of every message sent or received by every station were received daily by post in my office, thus giving the Chief of the Department the most complete insight into the working of every station, and enabling him to track an error or cause of delay with infallible certainty, and without any further reference or correspondence. Further, the accounts were all audited and passed up to date, and the expenditure on all lines and stations was controlled with economy and precision.

108. On my return in December last year, I found all this changed. The accounts were in almost inextricable confusion and arrears; the offices in the Bombay and Madras circles, and to a great extent in the North-Western Provinces, were almost in utter disorganization; night alarms were never attended to; a new system of the examination of messages had been introduced,—namely, leaving this in the hands of the Deputy Superintendents of each circle, instead of the Head Office; the Deputy Superintendents sent in a weekly tabular statement, professing to show the total number of messages, their number of words, exact number of errors, this with great apparent precision, to the fifth decimal place: what degree of reliance was to be placed on such reports may be judged by the fact that, soon after my arrival at Bombay, I took sudden possession of the examiner's records, and found that for more than six months the returns had been a mere sham, the detailed reports had seldom or never been read, and several hundreds were found still in the unopened envelopes.

109. I have accordingly directed the former system to be resorted to, and after much passive and open resistance on the part of some office assistants, I have nearly brought matters into a good working state again.

110. Further, I found on my return that in every office, messages were received aloud, and dictated by the receiver in the hearing of every one in the office, and in a very Babel of confusion, to a second person, often some ill-educated boy who could scarcely write or spell, and who accordingly perpetrated the most ludicrous errors in his transcripts. These errors no one took the trouble to correct, so out went the message, to the disgrace of the Department, and the great injury of the public. I have enforced again the introduction of the silent system, by which every receiving-clerk takes down the messages himself, unheard by other persons, thus avoiding the errors caused by dictation, and being himself alone responsible for mistakes. I have also caused all probationers to be strictly re-examined, and dismissed those who could not spell correctly. The printed orders issued on this subject are given in the Appendix.

111. Another flagrant and intolerable abuse which I found universal over all the Bombay and Madras offices was, the indiscriminate admission of visitors to the *signal-rooms*—every telegraph office had become a public news-room, and a lounge for the gossips

of the station. There was no secrecy or attempt at secrecy for messages, whether private or official. The office assistants made themselves popular with the idlers of the local communities by this shameful betrayal of their duty, and the Deputy Superintendents, seeking popularity in their Department, never interfered. Indeed, it has been clearly proved, that of all the residents of the head stations, the Deputy Superintendents were those who most rarely visited the offices. I am determined to put a stop to this abuse of the public service; and while I remain at the head of this Department, and am entrusted with its executive control, I will exclude all visitors, whether *official or private*, from the *signal rooms* of our offices, except under the stringent regulations detailed in the accompanying printed circular. I have the satisfaction to know that this determination is fully approved of by every one who has duly considered the subject. A little reflection must indeed convince every man of the instincts of a gentleman, that he might as well open a private letter, or ransack a desk, or listen at a keyhole, as pry into the confidential business of a Telegraph Office. The same feeling that makes a man of honor retire from the vicinity of parties engaged in private conversation, and close his eyes when a private letter is accidentally before him, should tell him also that to enter the signal-room of a Telegraph Office, and there listen to private messages, is a mean and dishonorable act, only suited to the character of a gossip or a spy.

112. I am persuaded that when the public once feel certain that there is every practicable precaution taken to prevent the disclosure of private messages, the business of the Department will increase to an enormous extent.

113. In concluding this perhaps too long Report, I claim the indulgence of Government while I touch briefly on a matter of merely personal interest to myself. It is now just twenty years since I erected in the vicinity of Calcutta the first long line of telegraph ever constructed in the world. The subject has been my occupation or pastime ever since, and circumstances have enabled me to extend that line from 20 to over 10,000 miles. I should be destitute of all common feeling of ambition if I did not desire most earnestly so to arrange the whole of this vast system, that it may attain the full efficiency a short time will accomplish, and that I may be thus enabled to make over the Department to other management without reasonable apprehension that the labors of my life may risk depreciation by my successors. I trust also to witness, before I quit the field, the establishment of telegraphic communication between India and Europe, by either or both of the proposed submarine lines. The *probability* of this communication being opened, imposes upon the whole Telegraph establishment in India the urgent duty of bringing all lines and offices into the best possible working order in preparation for that great event.

I have the honor to be, Sir,

Your most obdt. Servant,

BANGALORE,
31*st October* 1858.

W. B. O'SHAUGHNESSY,
*Superintendent Elec. Tels. in India.*

*STATEMENT of Services rendered by Inspectors, Head Assistants, Signallers, &c., of the Electric Telegraph Department, during the Mutiny of* 1857, *as per Government Order No.* 45 *of* 1858.

| NAMES. | RANK. | STATION. | SERVICES. |
|---|---|---|---|
| Mr. T. J. BROWN ... | 1st Class Inspector ... | Punjab ... ... | Employed in May 1857, opening communication with Kurnaul, the nearest safe point to Delhi. Accompanied the Army, re-erecting Telegraph line, and establishing communication in rear of the Camp for four months; was on duty with Army at Assanet, and capture of Delhi. |
| Mr. C. M. NAYLOR ... | 1st Class Inspector ... | Lahore ... ... | Has certificates testifying to his zeal and ability during the crisis in the Punjab, and recommending him for promotion to a 1st Class Inspectorship, from Major General Gowan, R. Montgomery, Commissioner, and D. F. Macleod, Financial Commissioner, Punjab, and has received one month's extra pay by order of Sir J. Lawrence, Chief Commissioner, Punjab. |
| Mr. J. RUSHTON ... | Head Assistant ... | Agra ... ... | Performed his duties most zealously at a most critical time, in the absence of all superiors; opened an office at Allyghur a few hours after the destruction of the wire at Meerut, which proved very beneficial to the Government.<br><br>After the total destruction of the whole of the lines in the North-Western Provinces, and after seeing to the despatch of the instruments and stores to the Fort, joined the Militia, for which he has received an excellent testimonial. |
| Mr. H. V. WALTON ... | Asst. Morse Instrument ... | Agra ... ... | Has certificates of his zeal and efficiency in the Department, and in saving his instruments, &c. during the mutinies, from Mr. Todhunter, Deputy Superintendent; and from the Officer Commanding, for his services as Sergeant in the Agra Militia, during which time the exposure, want of proper food, and marching, brought on a severe attack of cholera and fever, from which he suffered for two months; and on Dr. Lacy's saying that his state would not permit him to undergo military duty, he was placed in charge of the Fort Electric Telegraph Office by Mr. Todhunter, where, in a tent on the bastion, the exposure to the climate was very trying. |
| Mr. J. H. LANE ... | Assistant ... | Futtehpore ... | Since February carried on duties of Futtehpore Office, the country being much disturbed, particularly on the flight of the rebels from Calpee, Banda, and who crossed the Grand Trunk Road and Ganges, close to the station, which is situated in the native city, away from the European residents. |

| | | | |
|---|---|---|---|
| Mr. J. G. CAIRNS ... | Artificer ... ... | Agra ... ... | Employed during the rebellion, constructing lines through and near disaffected districts, having to desert his camp occasionally on the approach of the rebels, and exposed to many dangers while on the line. |
| Mr. W. McINTYRE ... | 2nd Class Inspector ... | Cawnpore ... ... | Has certificates from G. O'Donnell, Esq., Deputy Superintendent, Bengal, of his excellent services in Bengal till June 1857, when he was ordered up to Allahabad by Lieutenant Stewart to run the line from that place upwards, which he did, sometimes with and sometimes without guard, through most dangerous country, up as far as within twenty-seven miles of Agra, whence he was ordered back to Cawnpore, and marched with the Commander-in-Chief to the attack on Lucknow; keeping up with his Excellency's Camp to Alumbagh, and thence to the Dehilkosa, and thence to the Martinière; at times exposed to heavy fire from the enemy's guns, and to attacks from the enemy's cavalry. The line was run by him to the Martinière immediately after the storming of that place. The construction was performed entirely alone. |
| Mr. C. W. P. GORDON ... | Assistant ... ... | Mirzapore ... ... | Travelled up Grand Trunk Road to Sherghotty immediately after mutiny of 32nd Native Infantry; the road being considered unsafe, except for large bodies of troops. Was at Mirzapore during the time the rebels were in great force in the neighbourhood. No English Troops there. |
| Mr. A. M. GOODALL ... | Assistant ... ... | Cawnpore ... ... | Was in camp at Cawnpore during attack of the Gwalior Contingent, and exposed to the enemy's fire. Marched with Commander-in-Chief's camp to Futtehghur, opening communication. |
| Mr. W. T. STUART ... | Assistant ... ... | Mirzapore ... ... | Was at Mirzapore about October 1857, when the disaffected and disarmed 47th Native Infantry were there; accompanied and assisted Mr. Walker, the Deputy Magistrate, patrolling the lines for several nights, to enable the residents to have timely notice of any outbreak; also assisted Mr. Walker in apprehending three rebels, who had come to tamper with the Native Troops, and received Mr. Walker's thanks by letter. Was with Mr. St. George Tucker, and the expedition against some rebels in Bidjigurh; suffered much from marching, and want of food and water. |
| Mr. S. MAN ... ... | Secret Service ... ... | Cawnpore ... ... | Ordered to join Sir J. Outram at Lucknow, with "secret code" in October 1857; on voyage our boats were robbed by rebels; had to leave steamer at Dinapore and push on in an open dingy to Benares; was four days and nights exposed in open boat; could not reach Sir J. Outram, as he was besieged; proceeded to Cawnpore, through dangers that have threatened that place. |

| NAMES. | RANK. | STATION. | SERVICES. |
|---|---|---|---|
| Mr. J. M. RADFORD ... | Assistant ... ... | Umballah ... ... | Holds certificates from Quarter Master General, Colonel A. Becher, and G. C. Barne, Esquire, Civil Service, Commissioner Cis-Sutlej States, testifying to his zeal and efficiency in his office in June 1857, and during the disturbances. |
| Mr. E. H. BROOKS ... | 1st Class Signaller ... | Umballah ... ... | Employed at Sussoole, signalling most zealously; carried out his arduous duties day and night under very trying circumstances. |
| Mr. A. PETERS ... | 1st Class Signaller ... | Agra ... ... | Was ordered from Calcutta to Benares in the latter end of July, and was on the road part of August 1857, in the most dangerous and troublesome times of the mutiny. |
| Baboo SHEREENAUTH NEOGEY ... | Signaller ... ... | Mirzapore ... ... | Remained firm at his post in the office, when all the other hands left for Chunar Fort; was exposed to great danger from rebels: in consequence received the approval of the Superintendent, Calcutta, and increase to his pay of 30 Rupees per mensem for his conduct. |
| Mr. A. DESBROSSES ... | Signaller ... ... | Roorkee ... ... | Proceeded by order of Captain Drummond to Myapore, on the Ganges Canal, to open office in the month of January 1858; was taken prisoner by rebels under Nawab Mamood Khan, and closely guarded; was compelled to embrace the Mahomedan religion; was, while a prisoner, present during many actions fought against British; was ultimately released by force under Brigadier General Jones. |
| Mr. HAMERDINGER ... | Signaller ... ... | Cawnpore ... ... | Opened an office at Futtehpore in the month of November, roads being unsafe, when others refused to go. Accompanied Commander-in-Chief's force to Lucknow, and opened office at Alumbagh and La Martinière; has letter of thanks for his services during operations at Lucknow. |
| Mr. KAIN ... ... | Signaller ... ... | ... ... ... | Employed at Sussoole, and at Army Head-Quarters, Telegraph Office; present at the assault and capture of Delhi; rendered important services by his unwearied attention, and reported the fall of Delhi. Certificate from C. B. Saunders, Esquire, Commissioner, Delhi. |

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| Mr. McGarry ... ... | Signaller ... ... | Lahore ... ... | Has a letter from the Chief Commissioner, Punjab, recommending that he should be placed in charge of Lahore Office in room of Mr. Naylor, promoted on account of his industry and zeal, and that he should receive one month's pay extra. |
| Mr. G. Evans ... ... | Signaller ... ... | Lahore ... ... | Received one month's extra pay for industry in the Lahore Office by order of Chief Commissioner, Punjab. |
| Mr. Sullivan ... ... | Signaller ... ... | Lahore ... ... | Ditto Ditto Ditto. |
| Mr. J. W. Pilkington ... | Signaller ... .. | Delhi ... ... | Was the last to leave Delhi on day of massacre; this is creditably mentioned in Certificate from Mr. Barnes, C. S. |
| Mr. H. Martin ... | Signaller ... ... | Meerut ... ... | Has Certificates from Chief Commissioner, Punjab, stating Sir J. Lawrence's satisfaction at the way he conducted his duties; also from Col. Edwardes, C. B., Mr. LeBas, Judge, and E. Martineau, Esquire, Commissioner. |
| Mr. J. M. Archer ... | Signaller ... ... | Cawnpore ... ... | Proceeded on duty from Calcutta to Cawnpore in November 1857: roads unsafe. |

(Signed) F. J. WRAY,

*1st Class Ins. Actg. for Dy. Supdt. El. T. N. W. P. & P.*

Dy. Supdt.'s Office, Agra,
*Elec. Tel. Dept.,*
*The 26th August* 1858.

No 554.

To

SIR W. B. O'SHAUGHNESSY, KT.,

*Superintendent of Electric Telegraphs in India.*

SIR,

IN compliance with your Office Memo. forwarding Mr. Under-Secretary Chapman's letter No. — of the 11th May, and its annexure, I have the honor to forward to you copies of the two letters marginally noted, and their annexures, conveying a statement of the only instances that have occurred in Bengal wherein the employees of the Telegraph Department have been placed in circumstances of difficulty or danger owing to the recent mutinies.

Letter No. 700, dated 29th August 1857, with annexures from the Deputy Superintendent Electric Telegraphs in Bengal, to the Officiating Superintendent Electric Telegraphs in India.

Letter No. 149, dated 2nd June 1858, with annexure from F. J. Wray, Esq., to the Deputy Superintendent Electric Telegraph of Bengal.

2. On several occasions during the past year, the line between Sherghotty and Benares has been cut by the rebels, and artificers and signallers have been sent out from the Sherghotty Office by Mail and Express Carts to repair the injuries; but those parties were so fortunate as not to meet with the rebels; and the work they had been sent to do was executed without molestation. Messrs. Hourigan and Murray are the parties who have been chiefly employed on the occasions to which I refer; and I have much satisfaction in testifying to the ready and willing manner in which they have always performed the duty that was entrusted to them.

I have the honor to be, Sir,

Your most obedient Servant,

GEORGE O'DONNELL,

*Depy. Supdt. Elec. Tel. in Bengal.*

CALCUTTA,
*Elec. Tel., Depy. Supdt.'s Office,*
*The 6th July* 1858.

No. 700.

FROM

G. O'DONNELL, ESQUIRE,
*Depy. Supdt. Elec. Tels. in Bengal,*

To

LIEUTENANT P. STEWART,
*Offg. Supdt. Elec. Tels. in India.*

SIR,

I HAVE the honor to submit for your information the following narrative of the occurrences connected with the desertion of the Telegraph Offices at Bagoda and Sherghotty, by which Telegraphic communication between Calcutta and Benares was interrupted from the 3rd to the 16th instant, and of the means adopted for its restoration.

During the day and on the night of the 31st ultimo, the Assistant in charge of the Sherghotty Office sent me several messages, all tending to show that the residents at Sherghotty were in a state of alarm; and on the morning of the 1st instant, after a very short message was received, announcing that the signallers were just leaving the place, in company with the troops and European inhabitants, no further communication could be obtained with that station. Appendix A. is the account submitted by the Assistant in charge, of the circumstances that caused the place to be deserted.

Telegraphic correspondence was kept up between Bagoda and Benares until the 3rd instant; when Mr. Bence sent a message, stating that a number of Civil Servants and Military Officers, who were then at Bagoda, advised the signallers to leave the place, as there was every reason to expect that it would be attacked by mutineers and released convicts. Mr. Bence's Narrative of what took place will be found attached to this Report as Appendix B.

After the closing of the Bagoda Office, efforts were made both from Raneegunge and Calcutta to work direct with Benares; but although some signals passed, they were far too weak for any practical purpose, and the attempt had to be given up.

The accounts given by Messrs. Bence and Hourigan, on their arrival in Calcutta, of the cause of the panic which was driving the whole of the European inhabitants of the Mofussil to the Metropolis, did not appear to me to show sufficient grounds for the desertion of the Telegraph Offices; but as the signallers were too alarmed to return without Military protection, the orders of Government were obtained for the escort of a Company of the Bengal Police Battalion; and I at once made arrangements to proceed up the line myself with a party, and re-open communication. On the 5th instant, the party started accordingly; and the escort being fortunately at Govindpore, where their services were made over to me, no time was lost in reaching Bagoda, where the Telegraph office was re-occupied, and in working order on the afternoon of the 8th instant. Shortly after my arrival at Bagoda, Mr. Money and party, together with a detachment of Her Majesty's 64th Regiment, escorting treasure from Gyah, came in; and I, hearing from them that the road was quiet as far as they had passed along it, determined to push on with a few signallers, sufficient to open the Sherghotty Office, and to leave the remainder to follow me

with the escort. Accordingly about 4 P.M. on the 10th, I arrived at Sherghotty with the advanced party, and shortly afterwards that station also was in Telegraphic communication with Calcutta.

It is my pleasing duty to report that I found, on my arrival at Bagoda, everything exactly in the same state as it had been left. There was a very large amount of public and private money in the Office, besides property belonging to several gentlemen not connected with the Telegraph Department; yet all was safe, and in a few minutes after the hands arrived, work was recommenced. For the good conduct of the three chuprassies who had been left in charge of the place, and who were well aware of the extent of the trust that had been reposed in them, I directed that a donation of ten Rupees each should be paid them on the spot; and I trust that my doing so will meet with your approval.

I found things in an equally satisfactory state at Sherghotty: at this place the thanadar had made most complete arrangements for the protection of all the houses and property which had been abandoned, taking upon himself the entire control of the town. The thanadar, peishkar, the whole of the native omlah, and several hundreds of the inhabitants came to meet me immediately on my arrival; and it was impossible for anything to be more gratifying than the manner in which these people received me and my party, and expressed their delight at the return of the "Sahib logue." The thanadar informed me that the town had been all quiet from the time that it had been left by the Europeans, but that the district was very much disturbed—so much so, that open robbery and violence was going on in every direction beyond a mile or two from the station. A Telegraph chuprassie also arrived at the same time from Benares, in an extraordinary state of disguise, having been obliged to escape as best he could from columns of rebels whom he reported to be marching up the Grand Trunk Road. This man had left Benares on the mail-cart, with instructions to repair the line; and at Mohonia he was stopped by a party of sepoys, who were marching into the place in regular military order. The sepoys proved to be a part of the Dinapore mutineers, who after their signal defeat by Major Eyre, fled until they reached the Grand Trunk Road at Sasseram: not being pursued so far, they collected and halted on the Sasseram camp-ground for two or three days, levying contributions on the townspeople for their support; until at last the infliction becoming disagreeable, Shah Kubaroodeen managed, as he afterwards informed me, to collect a number of his dependents and attack the mutineers. The latter had little or no ammunition, and were unable to make a stand; so, after losing 25 of their number killed, besides many wounded, they marched upwards towards Benares. On their way the mutineers burnt all the bungalows, thannas, police chowkies, and public buildings of every description that they met with; they also cut the Telegraph line to pieces at each camp-ground; doubling up the wire in a way that made it useless, and burning the posts for firewood. The chuprassie stated that he had been severely ill-treated by the mutineers, and robbed of all he had; the dâks from Benares had also been stopped for three days at that time, and I determined to await the arrival of the Seikh soldiers, with the rear, before I proceeded further.

On the morning of the 12th, the Sherghotty Office having received its full complement of signallers, I took with me Mr. Bence and three signallers, and commenced my march towards Benares. We reached Baroon Ghat about 9 A. M. of the 13th, having found

all right as far as Muddunpore; but beyond that place there were no Police at any of the chowkies, and the peaceably-disposed villagers appeared to be in a dreadful state of alarm owing to the unrestrained violence and robberies committed by the people so expressively termed *budmashes*. When crossing the Bertanie Nuddee, a stream about seven miles east of the Soane, I found that 150 sepoys, being the two Companies of the 8th Native Infantry, which were at Hazareebaug on detached duty, had passed the spot four hours before me, en route to Jugdespore, the head-quarters of Baboo Kooer Sing. The sepoys had not at that time heard of Kooer Sing's defeat; they had a great deal of treasure with them, and were well armed, and supplied with ammunition. Of this party I continued to receive news whilst at Baroon, as they moved most leisurely and compactly, and halted for the night at a large village only four miles from where I was.

I must not omit to mention that I received every possible assistance from the Ghat Duffadar at Baroon, who is under the orders of Lieutenant Stanton. This man seemed most zealous and anxious in the cause of order; and I believe that it is entirely due to his exertions that the Ferry was kept open.

Crossing the Soane on the evening of the 13th, I put up for the night at Dehree, where there is a dâk bungalow. At this place the alarm amongst the people was far greater than I had found it anywhere up to that time; and in the course of the evening, news reached me that Kooer Sing with his brothers and family, and a large party of sepoys and ryots, were within five miles of Sasseram, having fled from Jugdespore after having sustained a second defeat. Kooer Sing's party intended, I was informed, to be at Sasseram early the next morning: and I immediately wrote to Shah Kubburoodeen, telling him of my arrival and strength, and offering him my assistance, if it would be of any use. In reply the Shah begged me to push on and take the lead of such a party as he might be able to raise: but he informed me at the same time, that he had no ammunition, and his people could only arm themselves with swords and spears. The horses having been removed from all the dâk chowkies by the *budmashes*, I could procure nothing except bullocks to proceed with, and I started with my party a little before noon. A short distance beyond Dehree the Telegraph line was cut by some evil-disposed people, probably those who had removed the dâk horses; but as the injury did not extend to anything beyond dividing the wire, it was at once rectified.

About 3 P.M. we arrived at Gorounda, where a spur of the hills that skirt the Grand Trunk Road, almost advances to the road itself. This spur is surmounted by an old Semaphore tower, and is about five miles from Sasseram. I had kept up constant communication with Shah Kubburoodeen, letters passing between us by runners all the morning; and in one of those letters I had requested him to send horses to enable me and my party to ride into the town and join him. In reply the Shah stated that Kooer Sing was at that moment in the town with all his people, trying to find him and his family for the purpose of killing them; and that his horses had all been taken away, but that some belonging to Mr. Costly, the Deputy Magistrate, were yet safe. I then wrote desiring that Mr. Costly's horses be sent to me at once, and proceeded with Mr. Bence along the ridge of the hill for some distance. After a short time parties of people were seen ascending the ghats; sowars were here and there moving about, and it appeared that Kooer Sing's party were moving off. About 5 P.M. a buggy and horse was sent to

me by the Shah, with a note stating, that Kooer Sing was in full flight, and I at once drove off to Sasseram and met the Shah. I then learnt from him that he had spread a report that I was accompanied by 500 European soldiers and some guns; and that the constant communication kept up between us favored the deception. Alarmed at the idea of being again attacked, Kooer Sing did not attempt to ascertain the truth of the rumour; but fled to a place amongst the hills, where he hoped to find himself free from molestation. That night I remained at a road Bungalow two miles beyond the town, which had, most unaccountably, escaped destruction; and on the following morning I drove down to the places where the line had been cut, and made arrangements for its immediate repair. Returning to the Bungalow I was preparing to open an office, and to send on messages to Calcutta, when a man arrived from the Shah to inform me that Kooer Sing had sent scouts the preceding evening towards Dehree, for the purpose of ascertaining the strength of my party: and that three or four of his sowars were in Sasseram at that time inquiring about us. Some of my people then observed parties of what were taken to be Kooer Sing's people, approaching from the hills, and it was considered imprudent to remain any longer. Accordingly at 9 A.M., on the 15th instant, the working party collected the tools, and advanced towards Jehanabad. We were unable to get on very rapidly, as only bullocks could be obtained to draw the carriages; but we managed to reach Jehanabad about noon, and found, as at Sasseram, all the bungalows, thannahs, police chowkies, &c., burnt down, and the Telegraph line cut and destroyed most completely. The destruction at Jehanabad was such as to cause the impression that the mutineers were not the only parties who had been concerned in the mischief which had been done, and inquiries made by me on the spot elicited information fully bearing out that idea. In fact I believe that one of the neighbouring Indigo Factories (Mr. Smail's) had been rifled at least two days before the mutineers reached the place at all; and the remains of bullock-train carts, which were lying broken up on the road, and other circumstances, strongly favored the inference that much more deliberation had been exercised in doing the mischief than the columns of mutineers could have had time for. My working party having reached, and commenced operations, I went forward, and at Shew Saugor found eight dâks, being the ordinary dispatches of the Post Office for that number of days from Benares, that were detained owing to the coachmen being unable to procure horses and afraid to proceed. I insisted upon the Mail Carts being taken on by bullocks, and saw three dispatches start for Sherghotty before proceeding further. From this place I procured dâk horses the whole way up to Benares. The district seemed everywhere very disturbed; the people whom we met had a frightened and uneasy appearance; and between the 272nd and 273rd milestones I found a man lying dead on the road, who had evidently but very recently been murdered. There was no police or any one near the spot to take notice of what had occurred, and the perpetrators of the deed removed the bullocks belonging to a country cart in which the unfortunate man had travelled.

Proceeding on, I reached Mohonia and Nobutpore: at Mohonia the line had been temporarily repaired by a Baboo who left Benares for that purpose; and who meeting the mutineers three days previously at this place, was seized by them, robbed, and ill-treated. The man contrived to return to Benares, but in a very poor plight. At Nobutpore, Baboo Thackoor Persaud was engaged during the day in repairing the line, having put it in working order the whole distance from Benares; and his party being on the spot I pushed on without halting. When I arrived at Mogul-ke-seraie, about 10 miles below Benares, I met with Messrs. Pollock and Costly, the Deputy Magistrates of the Nobutpore and

Sasseram districts, in company with several gentlemen and an irregular levy of Sowars and foot soldiers, proceeding down the road. Having communicated to them the information that I had obtained, I went on alone, leaving my party, consisting of Mr. Bence and the three signallers, with the camp to await my return.

On the 16th I had the pleasure of meeting with you at Rajghat; and in about two hours after, Benares was in communication with Sherghotty.

Returning the following morning (the 17th) I arrived at the camp at Nobutpore, about noon. The rumours regarding Kooer Sing and his party, that reached me, were still sufficiently alarming; and my people desired to remain and march under the protection of the column. The following day (the 18th) we made to Mohonia, where the accounts became still more grave; it being stated that Ummur Sing had ascertained correctly the strength of the whole party, and was arranging to attack us during the night. One of my signallers lost no time in making the best of his way to Benares, whilst the two others set out in the opposite direction, determined to try and reach Sherghotty. Mr. Bence and I stayed with the camp to see the result; but happily no attack was attempted. On the following morning Mr. Costly stopped several up-country men who were armed and proceeding towards Calcutta; these he sent back under escort to Benares; and shortly afterwards a large number of carts laden with salt, saltpetre, dholl, &c., intended for a village about eight miles from Sasseram, where Ummer Sing held his head-quarters, were detained.

Being anxious to return to Calcutta, I set out with Mr. Bence, and reached Dehree on the evening, having met with no interference whatever on the way, although the police and dâk arrangements were just as I left them on my way up. At Dehree the people seemed still in great alarm, and told me that Kooer Sing, who was at that time at Akberpore, near Rhotas, was sending scouts out to all the villages, and trying to excite the evil-disposed to destroy Government property and buildings, and to molest and ill-treat all who were in Government employ. It was with considerable difficulty that I managed to get the ghat manjees to cross my carriage over the Soane; and the presence of some power sufficiently strong to keep the establishment in order, and to give a sense of security to the residents of the place, appears very necessary.

Reaching Sherghotty, I found that Station working admirably with Benares, and proceeded at once to Raneegunge, finding all right on the way, with the exception of such alarm as arose from the uncertainty that existed regarding the place where the 5th Irregulars were, and the route that Regiment, which had just mutinied, intended to take.

At Burdwan, I was forcibly struck with the necessity for at once arranging to remove the Telegraph Office from the Railway Station. The nature of the messages that are now passing on the Burdwan and Patna line need only be alluded to, to make the chief reason evident; and the inconvenience of the small staff of signallers being compelled to reside at a distance from the place they have to work at, is also a weighty consideration.

I look forward with anxiety to the early completion of the direct Barrackpore and Burdwan line, which will enable the Burdwan office to be thrown out of the main line.

and very considerable improvement on the present arrangements will then naturally take place.

In concluding this report it merely remains for me to mention in the highest terms of praise the assistance I have received from Mr. Bence. This officer has stood by me throughout the whole of the difficulties that I have had to encounter, and but for his help, I should not have succeeded in pushing on the signallers and workpeople in the manner that I have done. I only do justice to Mr. Bence when I state, an acquaintance with the language and customs of the country is all that is necessary to make him a first-rate Telegraph Officer.

I have the honor to be,

SIR,

Your most obedient Servant,

CALCUTTA,
*Elec. Tel. Office,*
*The 28th August* 1857.

(Signed) GEO. O'DONNELL,
*Depy. Supdt. of Elec. Tel. in Bengal.*

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## APPENDIX A.

To

G. O'DONNELL, ESQUIRE,
*Depy. Supdt. of Elec. Tel. in Bengal.*

SIR,

I HAVE the honor to submit a full and accurate report of the desertion of the Sherghotty Telegraph Office, and every particulars connected with it, and also all what transpired from the date of my leaving the station to my arrival at Raneegunge.

At about 1 P.M. of the 31st ultimo, it was intimated to me by Mr. Blewet, Inspector of Post Offices, Patna Division, by whom the signallers were armed a few days previous, that it had been arranged by the authorities at Sherghotty to form the Telegraph Office into a place of defence and refuge, in the event of any outbreak among the natives; and as it would be necessary to accommodate many ladies, should the worst occur, two rooms in the office premises were to be vacated for their reception by the signallers; this was however not done until I had spoken to Mr. Davis, the Deputy Magistrate, on the subject. At this time there were many reports current of an expected attack, but I really could not ascertain from what quarter, although I made repeated inquiries; everything appeared to be in confusion. At 6 P.M. on the same day Mr. Lorimer, of the Department of Public Works, came over to the Office, and stated in the presence of all the signallers, that Lieut. Stanton had desired him to inform me to prepare to leave Sherghotty with the signallers without a moment's delay, as the detachment of H. M.'s 64th Foot, then stationed at the Post Office, was on the eve of retreating; this caused a panic among the hands, and it was with the greatest difficulty that I could restore order, and get them to attend to the instruments after that. I immediately on hearing this called on Lieut. Stanton to gain further information; he was quite ready to start, and said that "we must leave at once; a Bullock waggon would be at our service" for six signallers and all our traps. I then went to the Magistrate, but he was not at home. Mr. Blewet who lived with him, and all the ladies and gentlemen who had fled thither from

different parts of the country for safety, were just leaving in carriages for Raneegunge, and I was strongly urged to make all haste and leave also. On this I returned to the Office, and sent on the messages which were on hand, secured the Office records, carefully connected the main line, and put Benares in direct communication with Bagoda; this was all that could be done at the time to prevent the work being impeded; and then left at 8 P.M. When the signallers and I arrived at the Post Office, Lieut. Stanton was there, and it was owing only to the bullocks and drivers having run away, that the troops were detained up to our arrival, and it was not until 11 o'clock in the night that we got away. I told Lieutenant Stanton that it was wholly by his orders that I had deserted the Office; to which he replied, " it could not be helped."

At 7 A.M. on the 1st instant, I went to Lieut. Stanton and asked him if we would be permitted to have our meals from the soldiers' cooks, as we had money, but could not procure food; this was in the presence of Captain Thompson: he informed me that this could not be done, as it was in itself quite difficult to supply the men. We were thus thrown entirely on our own resources. We arrived at the Barra dâk bungalow at noon, where the troops halted; but in consequence of the whole place being taken up by the ladies, gentlemen, and the officers of the detachment, we could obtain nothing, and had to depend completely on the hospitality of the men, who, though they had but little, were glad to share it with us. I did not forget to remind Mr. Davis, the Deputy Magistrate, of your message to him to incur any expense on our account; on which he very kindly sent us seven hand-cakes and about two pounds of beef; this was of course scarcely sufficient to sustain six young men for twenty-four hours, who were exposed to all the fatigues of travelling and pushing carts through nuddies the previous night. Yet of this I am sure, as I have stated before, that had it not been for the kindness of the men, we would have certainly been starved. At about 6 o'clock the same evening, orders were issued for the troops to return by the Dobie road to Gya, and all ladies and gentlemen were to proceed to Calcutta. I cannot say if it was optional for them to do so. On learning this I asked Lieutenant Stanton to allow the signallers and myself in company of the Postmaster to return to Sherghotty: to this he acquiesced. At 8 P.M., when the Civilians were leaving for Calcutta, we started for Sherghotty, fully determined to re-occupy the Office; but very unfortunately, some dâk men at the Goolsunkur river earnestly begged of the Postmaster not to attempt doing so, for it would be sheer madness; we therefore returned, though reluctantly to Barra at 9-30 P.M. the same night; the detachment was then just marching away to Gya, and the Civilians had all left for Calcutta. I met Lieut. Stanton, and related all that had occurred; he only desired me to use my own discretion. Had there been even the Magistrate at Sherghotty, we would have returned. Matters taking so sad a turn, we had no other alternative than that of either following the troops on foot, with every prospect of being starved, to Gya; or of making the best of our way to Raneegunge. We chose the latter, and after being detained all night in the Dhunwah pass, being provided with a bad horse, we at length reached Burhie the next day at 1 P.M.; all we had brought with us from Sherghotty we were obliged to leave at Barra; and it was there that I lost the office records and all the money I had. There being eight in the Postmaster's carriage, it was deemed advisable to procure another conveyance; I therefore obtained a mail cart from the Post Office; and two signallers and I started for Bagoda in it. We were compelled to take any horses we could get.

I beg to state that the kindness evinced towards us both by Mr. Bonifacio, Postmaster, and Mr. Thompson, Road Overseer, deserves our best and united thanks; we

were completely destitute, and it was they who supplied all our wants from Barra to Raneegunge. In the general excitement of endeavouring to escape, all Christian feeling appeared to have ceased to exist; a seat even behind a carriage was frequently refused us; nevertheless dogs and native servants occupied comfortable places; and we were left to struggle against the inclemency of the weather without sufficient food or even clothing.

We reached the Bagoda Office some time during the night of the 2nd instant, and found it, to our great disappointment, deserted. I reported our arrival to you by Telegraph, and would have remained, had we not been strongly urged by the servants to leave. All the Police chowkies, as well as the villages on the road side from Burhee to Bagoda, were deserted; and the convicts from Hazareebaugh, in conjunction with some of the mutineers, were expected to plunder the place that night. We left Bagoda at about 2 o'clock on the morning of the 3rd instant, and arrived at Raneegunge the next evening at 5 P. M., the 4th instant, whence I was ordered to proceed to town and report myself to you.

We have lost everything we possessed; and as in our circumstances we can ill afford to replace our losses, we beg some consideration will be made. We were anxious to have served Government to the last moment, but when British troops retired, we deemed it folly to remain. I am, moreover, very desirous of being ordered back to the Sherghotty Office, and so are all the signallers that were there.

I have the honor to be,

SIR,

Your most obedient Servant,

(Signed) J. HOURIGAN,

*Late Assistant in charge, Sherghotty.*

RANEEGUNGE,
ELECTRIC TEL. OFFICE,
*The 29th August*, 1857.

## APPENDIX B.

To

G. O'DONNELL, ESQUIRE.,

*Depy. Supdt. of Elec. Tel. in Bengal.*

SIR,

IN compliance with your request, I have the honor to forward you the following particulars connected with the late desertion of this office.

On the outbreak of the sepoys at Hazareebaugh, the signallers at this station refused to remain any longer in the office, unless the detachment of sowars, placed here for the safety of the village, were removed; on my refusing to send this application, they tendered me their resignation in a telegram to yourself; this I also refused to forward, but informed them that I would send on any correspondence they might wish to address to you on the subject, provided it went in the ordinary official manner; however, after consulting with them for some time, I contrived with *extreme difficulty*, to make them resume their work, they still declaring their intention to leave the place on the following morning, as they considered the district to be thoroughly unsafe. On the arrival of Major Simpson from Hazareebaugh, some few hours afterwards, with the Deputy Magistrate, and Postmaster from Burhee, together with other Europeans from the neighbouring disturbed districts, their confidence was fairly restored, notwithstanding the various rumours which were circulated, to the effect that the people of the Bazar and village were only waiting for a favorable opportunity to destroy the office and massacre the hands; I was repeatedly advised by the native servants on this establishment, that it was only endangering my own safety and that of the hands, by remaining here. The chuprassie also informed me several days previous to the mutiny at Hazareebaugh, that the sepoys declared to him it would be the last time they would let him take money from their Treasury; and although Capt. Drew and Dr. Liebartode came direct to this place immediately on the out-break, I was informed by my own servants some time before they arrived, that Hazareebaugh was in flames. This intelligence must have emanated either from the sowars or road-police at this station, and there is no doubt but that they were aware of the sepoys' intentions long beforehand.

On the 1st instant, the bazar was in an usually disturbed state, owing to a report that the sepoys were advancing towards Bagoda, to occupy the place and murder the Christians; and I was again entreated by my servants to leave the place. I did not believe the report, and therefore said nothing of the circumstance to any one: about half an hour after this report had been circulated, the communication between Sherghotty and this station was interrupted, and, after rolling to them for upwards of an hour, I sent the usual interruption report. This was despatched at four o'clock, and twenty minutes afterwards a sowar came galloping from the direction of Utka, and stated to Major Simpson and the Deputy Magistrate of Burhee, that three hundred released convicts, under command of the mutineers, were in sight at Utka, distant about six miles from Bagoda, and that they were advancing, fully armed, to attack and occupy the latter place. After the statement of this deponent had been officially recorded, Major Simpson ordered that all the Europeans should leave the station at once, in vans which had been provided for the purpose; accordingly, after collecting the public money, which I took to Calcutta with me, I placed the office, and some money belonging to private parties, in charge of three good chuprassies

in whom I placed implicit confidence; I also disconnected the earth-lines from the instruments, and joined on the main line with Benares; sending a chuprassie by mail cart to ascertain the cause of interruption, and giving him the necessary materials for restoring communication, so as to enable Calcutta to work direct with Benares. Before leaving the office, I assured the men whom I placed in charge, that they should be well rewarded if I found everything safe on my return.

It was my wish to establish an office either at Doomree or Govindpore, and ascertain further particulars (for which I took the necessary instruments, &c.). This would have enabled me to have given you a more detailed account of our proceedings than I was enabled to do at Bagoda; but on our arrival at these places, the signallers refused to remain; and as every one was in a great hurry to reach Calcutta, I found it was quite useless to attempt any such arrangement: accordingly, on my arrival at Raneegunge I told the signallers there, that I considered Bagoda thoroughly safe, and should return the same evening, if I could get hands to go with me: two or three new hands volunteered to do so; I then telegraphed to you my arrival, expressing my wish to return, and received in reply your order for me to proceed to Calcutta. After placing the signallers who had volunteered to go to Bagoda, in charge of Mr. Cumberlege, I left for Calcutta the same evening.

On my return to Bagoda, I found nearly everything safe, including 1,000 Rupees belonging to Mr. Henderson, as well as some private money of my own; nothing of any importance was missing; and that which was lost was, I have every reason to believe, stolen by natives.

I have, &c.,

BAGODA,
*Elec. Tel. Office,*
*The 10th August* 1857.

(Signed) T. R. M. BENCE,
*In charge Electric Telegraph Office, Bagoda.*

No. 149.

FROM

MR. F. J. WRAY,

*Inspector, Electric Telegraph Department,*

TO

G. O'DONNELL, ESQUIRE,

*Deputy Supdt. Elec. Tels. in Bengal.*

SIR,

ACCORDING to your order, I have the honor to report what occurred in the Benares Office, when the troops mutinied at that station last year.

At about 4-30 P. M., on the evening of 4th June 1857, the 32nd Regiment Native Infantry, together with part of the Sikh Regiment, mutinied; and when the firing was heard at the Telegraph Office (which is not far from the lines), all the signallers, with the exception of Mr. Faris, sought safety in flight, leaving their muskets and ammunition behind.

Mr. Faris, with my help, barricaded the doors of the bungalow; and we remained there for nearly three hours, when, seeing a number of sepoys rushing through the compound, and knowing that two individuals could do nothing against so many, we left the place at the risk of our lives, and joined a small party of European soldiers, who were escorting some carriages full of ladies and children.

We were obliged afterwards to take refuge in General Kennedy's bungalow, bringing the women and children with us, as we were fired upon by some of the mutineers; and the soldiers left us to go in pursuit.

It was twelve o'clock at night before we reached the Mint, where the Europeans were assembled.

Before we left the Telegraph bungalow, I promised the chuprassies a reward, if they remained and took care of the instruments.

The next day, the Commanding Officer informed me that he had two or three important messages to be transmitted, so I called for volunteers from amongst the signallers, and after some hesitation, three of them accompanied me to the office, escorted by two sowars.

We continued to go to the office for some hours daily until the 7th, when we returned to our quarters, leaving our families in the Mint.

A European guard was furnished for the office, but when Major Haliburton informed me that the soldiers were much required elsewhere, I dispensed with their services, forming a guard of our own; and for many weeks we took our regular turns of sentry duty.

I must say that all the hands in the office had to work exceedingly hard; so much so, that the Commissioner, Mr. Tucker, promised them a reward; but up to the present time they have not received it.

I attach copy of a certificate which the Commanding Officer, Lieutenant Colonel Gordon, was kind enough to give me.

I have the honor to be,

SIR,

Your most obedient Servant,

CALCUTTA,
*Electric Tel. Office,*
*The 2nd July* 1858.

(Signed) F. J. WRAY,
*Inspector, Electric Telegraph Department.*

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To

F. J. WRAY, ESQUIRE,
*Late Supdt. Electric Telegraph Office, Benares.*

MR. WRAY having been promoted from the Superintendence of the Benares Electric Telegraph Office to that of Calcutta, is about to leave this station; and as I have, with the exception of a few days' interval, been in command of the troops at Benares from the commencement of the present rebellion up to the present date, I have had a vast deal of official business to transact with the Department; and I now consider myself called upon to certify to the assiduity, zeal, and ability, with which Mr. Wray has, to the great advantage of the public service, conducted his arduous duties throughout.

Having also personally myself experienced much civility and attention from Mr. Wray, I cannot allow him to depart from Benares without a tender of my cordial thanks and best wishes.

BENARES BRIGADE OFFICE,
*The 6th October* 1857.

(Signed) P. GORDON, *Lieut.-Col.,*
*Commanding at Benares.*

(True Copy.)

(Signed) F. J. WRAY.

No. 1316 OF 1857-58.

FROM

THE DEPUTY SUPERINTENDENT,

*Electric Telegraphs in India,*

TO

CECIL BEADON, ESQUIRE,

*Secretary to the Government of India,*

HOME DEPARTMENT.

SIR,

I HAVE the honor to forward for the information of the Right Hon'ble the Governor General in Council, a brief report of the construction and working of the Telegraphic lines and offices between Cawnpore and Lucknow, and in the neighbourhood of the latter City, during the preparations for the attack and subsequent siege operations.

2. The line of Telegraph constructed from Cawnpore to Alumbagh in the beginning of November 1857, had been almost entirely destroyed by the rebels, and such portions of the wire as we were able to recover and remove had been made use of in January in reconstructing the line from Cawnpore towards Agra. The fact that a line had previously been erected along the Lucknow road did not therefore make the work of reconstruction much lighter, and entirely new stores of wire and posts were sent from Cawnpore for the whole extent, with a balance sufficient for about 25 miles of extra line, to provide for branch offices in the various camps.

3. Before the completion of the line to Alumbagh, and while the Head-Quarters' camp was still at Cawnpore, and the ordnance and other stores in transit towards Alumbagh along a road held by successive Brigades, which were posted at different points between Cawnpore and General Outram's camp, the Commander-in-Chief expressed a wish to make use of the Telegraph in reporting the progress of the convoys, and communicating with the respective camps. An office was accordingly opened at Bunnee Bridge about 34 miles from Cawnpore, on the 17th February. On the 19th the line was completed to Alumbagh, and a second office opened in General Outram's camp. Later on the same day the Bunnee Bridge office was closed at the Commander-in-Chief's desire, and a new office opened on the following day (the 20th) at the village of Nawabgunge, 26 miles from Cawnpore, and more conveniently situated than Bunnee for communication with the force, which, under General Hope Grant, was then proceeding to the assault of Meeangunge. This temporary office was maintained till the 26th of February, two days before the removal of Head-Quarters toward Lucknow, when it was closed, and a new office opened on the 27th at the great encamping ground of Buntara, some seven miles short of Alumbagh.

4. The Buntara office was kept up till the last Brigade of the force collected there moved on to the front on the 3rd of March. The signallers and establishment were then summoned to Alumbagh to be in readiness for any new duty in the more immediate vicinity of Lucknow.

5. On the 2nd of March, the Commander-in-Chief advanced with a part of the force to the Dilkhoosha *viâ* Jellalabad, and on the following day arrangements for connecting the new camp with Alumbagh were made, but as it was not considered advisable to erect a line which might probably have been cut by the enemy at that time, the com-

mencement of work was delayed till the 4th of March. On the afternoon of that day the whole working party of natives, while employed about a mile from Jellalabad under Mr. Inspector McIntyre, took to their héels on a rumoured approach of a party of the rebel sowars; a considerable number of these men never returned, and the Inspector's work was much delayed by the difficulty of replacing them and obtaining tools, &c., in place of those lost on this occasion.

6. On the morning of the 6th the line was completed to Dilkhoosha, and the office opened in the building itself, which was then and till the afternoon of the 9th the most advanced position occupied by our pickets. During this time the Head-Quarters' Camp was at Bibiapore, about ¾ of a mile in rear of the Dilkhoosha, but the distance was not inconveniently great, and no delay of consequence was caused in any of the numerous important messages transmitted.

7. On the 6th of February, General Outram's Force crossed the Goomtee, and after making a wide detour to the North-East, to avoid the villages and broken ground near Oojeraon, drove back the enemy, and encamped near Chinhut, on the Fyzabad Road. A line of Telegraph might at once have been constructed to this camp, but the detour would have been great, and the route very inconvenient for any future movement towards the front of the Head-Quarters' office. On these grounds, and on account of the risk to which the working party would have been exposed in constructing such a line under the fire of the enemy's battery, near the "Martiniere," it was decided not to extend the Electric Telegraph to the camp on the left of the Goomtee until the period of the attack which necessitated the capture and occupation of that building, had arrived.

8. On the evening of the 8th, however, the Commander-in Chief expressed a wish that provision should in the meantime be made for communication between the two camps by means of Semaphore. Three men of the Royal Engineers were placed at my disposal for the purpose of making up and working the Semaphore, and every assistance given me by the officers attached to the Engineer Park. Before 12 o'clock on the 8th one complete double-armed Semaphore was constructed on the spot, and a second one was completed during the day, and despatched to General Outram's camp. I also prepared the Signalling Code, of which a copy is attached, and had one of the Semaphores erected on the roof of the Dilkhoosha, proceeding myself to General Outram's camp on the morning of the 9th, to superintend the signalling there if required. Circumstances however prevented any use being made of the Semaphore on this occasion. In fact the one on the left bank of the Goomtee was never erected, for I found on arriving at the Chucker Kootee, the only prominent buildings in the neighbourhood of the advanced position that morning taken up by General Outram, from which communication with the Dilkhoosha could be readily carried on, that the lower story of the house was still held by a few of the rebels who had already caused a number of casualties by firing from the dark cells they occupied; shortly after I arrived, an order was given to vacate the building to allow of using guns against it. Part of the building was soon afterwards on fire, and I found it too late to commence the use of the Semaphore, the "Martiniere" having been occupied in the meantime, and the objection to the extension of the Electric Telegraph removed.

9. I returned at once to Head-Quarters, and found that the posts had been erected and were stretched from the Dilkhoosha to the entrance of the "Martiniere" by Mr.

McIntyre, within two hours' of the capture of the latter. The office could thus have been established before sunset in the building which had been assaulted at 4 P. M. Had it been necessary to do so, but as the removal of the Head-Quarters' camp was not to take place till the following morning, the 10th, the office was held as before in the Dilkhoosha till then.

10. During the 10th, the line was carried across the Canal and Goomtee to a building on the left bank of the river close to General Outram's Head-Quarters, and another office, the third in the great Camp around Lucknow, was opened on the 11th and kept up till the 16th, when on account of General Outram's recrossing to the right bank of the river after the greater part of Lucknow had fallen, there was no longer any necessity for an office there. On the 12th, the Head-Quarters' office, which had been for two days in the upper story of the "Martinier," was removed for greater convenience to a tent close to that occupied by the Commander-in-Chief, about a quarter of a mile to the West or city side of the building. Up to the date of my leaving Lucknow, the office was held at the spot I refer to, and was then the only one made use of at Lucknow, as the Alumbagh office which had been uninterruptedly at work since the 19th February, was closed on the 18th of March.

11. It would perhaps be out of place in me to speak of the extent to which the Electric Telegraph may have aided the operations before Lucknow, but if at any future period it should be considered interesting or advisable to collect and arrange the recorded messages transmitted through the temporary offices opened in Oudh during the month preceding the final capture of Lucknow, no other evidence would be required to show how extensively the Electric Telegraph may assist in all military operations, and how peculiarly applicable it is to extended offensive operations such as those which have been successfully concluded at Lucknow.

12. I would respectfully request permission to bring to the favorable notice of Government the services performed by the Inspector Mr. McIntyre who, assisted by an Artificer Mr. Leadlie, was generally in charge of the working parties, and whose zeal and activity deserve the highest praise. Also of the Assistants in charge of the temporary offices, Messrs. Ceams, Minton, Hammerdinger, and Godwin, all of whom volunterered for duty with the force, and all cheerfully assisted in constructing the lines, and rapidly removing or re-establishing offices whenever it was necessary to do so. On many occasions the whole duty of an office devolved on a single signaller, with no other assistance than that of the natives who watched the instruments at night and summoned him when required.

13. The simplicity and portable form of the instruments used (which were made up by Mr. Crible, the Superintendent of Workshops, on a design very slightly modified from that introduced by Sir William O'Shaughnessy) much facilitated the rapid removal and opening of offices, as with them a few minutes sufficed to complete all the connections. The "Earth" Wire was generally inserted in a small hole in the ground, some two feet deep, into which a few gallons of water were poured occasionally. Imperfect as such an expedient would seem at first sight, especially when the hard dry nature of the soil in India is considered, it was found to answer admirably; not the slightest difficulty being experienced in communicating from any of the temporary offices, not only with those in Camp a few miles off, but with stations as distant as Agra or Allahabad.

14. Before concluding the report, I must express my obligations to Mr. H. Harrington, B. A., of the Telegraphic Department, who superintended the commencement of the Lucknow line before my own arrival in Cawnpore, and also beg to record the good services performed by the Artificer Serjeant Myers, who was at that time employed by Mr. Harrington on the work.

I have the honor to be,

SIR,

Your most obedient. servant,

ELEC. TEL. DEPARTMENT,
DEPY. SUPDT'S. OFFICE,
*The 8th April* 1858.

(Signed.) P. STEWART, *Lieut., Engrs.,*
*Deputy Supdt. Electric Tels. in India.*

FROM

MR. H. WICKHAM,

*Deputy Superintendent Electric Telegraphs in Pegue,*

TO

SIR W. B. O'SHAUGHNESSY, KT.,

*Chief Superintendent Elec. Telegraphs in India.*

SIR,

I have the honor to report for your information my arrival at Galle on the 17th ultimo, and my departure from thence to Colombo the next morning, per mail, where I met Mr. St. Alban. After waiting for my baggage, we left on the 23rd and arrived at Paumben on the 24th. Upon enquiry I not only found a paucity of vessels, but none suitable for laying the cable. I returned to Colombo in the Steamer *Pearl*, chartered a vessel, and returned to Paumben on the 29th. The expense of coiling the cable on shore being great, and time by day labor tedious, a contract was entered into for the recoiling on board for Co.'s Rs. (150) one hundred and fifty, to be completed in ten days.

Commenced recoiling on the 1st instant. Mr. St. Alban superintending the stowage on board: myself superintending the uncoiling and shipment. The recoiling was completed on Sunday the 5th, the cable having been tested for insulation, passing through the sea on its transit on board; which test proved highly satisfactory. September 7th, light westerly winds at 8 A. M.

Mr. Daviot, Government pilot, with two canoes and crews and twenty coolies, came on board. 8-30 weighed and proceeded towards Adam's Bridge, with light breezes settling down to a calm. At 6-30 anchored for the night.

September 8th. Light westerly winds; weighed and warped the vessel in shore. Noon, landed the end of the cable. 3 P. M. connected the end with shore post ¾ mile from water's edge. Placed battery of four cells sulp. copper under Mr. Inspector White. 3-30, warped into deep water. Tested the portion landed, and set galvanometer. 7-30 P.M., heavy squalls; placed Messrs. St. Alban, Daviot and myself into watches on the cable to prevent accidents.

September 9th. Strong winds with heavy squalls, blowing too hard to attempt getting under weigh.

September 10th. Daylight, strong winds but steady. Sunrise, weighed and stood across the Straits of Manaar under jib and mizen. Stationed Mr. St. Alban below with coolies to superintend the uncoiling; Mr. Daviot (who had never crossed the Straits before) at the hatchway to interpret the Tamil language. Myself taking the general management of the vessel and paying out of cable. 7 A.M. cable fouled below, owing to the inner layers of the coil slipping with the rolling of the vessel. Anchored both by head and stern; cleared the cable. 7-20 stood across again under jib and mizen. 9. Wind increasing, obliged to anchor.

September 11th. Blowing a moderate gale of wind: could not attempt crossing. Vessel labori ng much.

September 12th. More moderate; weighed under the jib and mizen, and stood across the Straits. Vessel going at 4 miles per hour. 8 A.M. grounded off Talamaar: sent boat out to sound for channel. 9-30, Hove off and stood in shore to the east of Custom House. Noon anchored. The coolies being too tired, did not attempt to land cable.

September 13th. Daylight: warped vessel on shore, and landed the end of cable one mile to the east of Custom House. Tested for insulation and earth: found all perfect. Sent and received signals from the Indian side, with four cells sulp. of copper, and reduced to one cell. Good and readable signals across. Secured and barred end of cable below the sand in water. Left Talamaar and proceeded to Rameshwarum; again tested, and the result highly satisfactory.

The cable has been placed under great disadvantage on account of the windy weather, and having workmen with whose language we were entirely unacquainted.

Mr. St. Alban had an arduous duty to perform: he did it with credit to himself and entirely to my satisfaction, being placed in the hold with coolies, and the cable running out at 4½ miles per hour.

Mr. Daviot was also of the greatest service in interpreting our orders, and seeing them executed.

The distance from point to point is 21 miles. Length of cable expended 25 miles, making the loss under 10 per cent.

I have written to the authorities, both at Ceylon and this place, to have precautionary measures adopted for the prevention of accidents by the anchors of dhoonies; as also to the Colonial Secretary of Ceylon, stating the manner cable had been successfully placed.

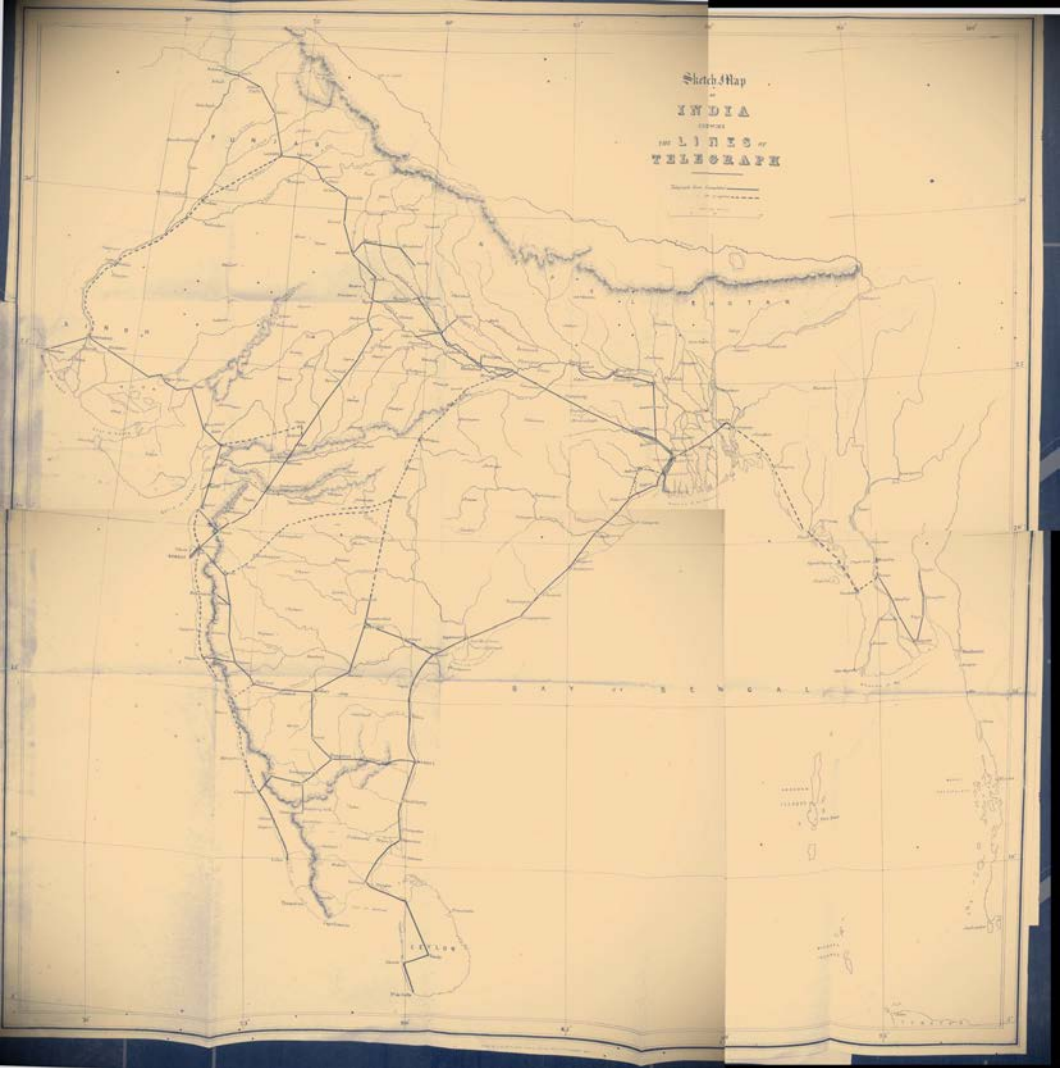
I have the honor to be,

SIR,

Your most obedient Servant,

H. WICKHAM.
*Depy. Supdt. Elec. Tel. in Pegue.*

PAUMBEN,
*The 17th Sept.* 1858.


Sketch Map
of
INDIA
shewing
the LINES of
TELEGRAPH
BAY OF BENGAL
CEYLON

# ANNUAL REPORT

OF THE

# ELECTRIC TELEGRAPH DEPARTMENT,

FOR THE YEAR 1858-59.

# ANNUAL REPORT

OF THE

# ELECTRIC TELEGRAPH DEPARTMENT,

## FOR THE YEAR 1858-59.

No. 634.

To

W. GREY, ESQUIRE,
*Secy. to the Govt. of India,*
CALCUTTA.

SIR,

IN compliance with the standing orders of Government, I have the honor to submit my Annual Report on the Telegraph Department, for the year commencing on the 1st of May, 1858, and ending on the 30th April 1859.

2. In my last Report, I described in detail the state of the lines and offices up to the 30th April, 1858, and I reported in outline their extension and state up to the 31st October, at which date there were 7,682 miles of lines (including the re-construction of the Indore and Agra line), and 125 offices open for correspondence.

3. Since October 1858, the following lines have been completed:

| FROM | TO | MILES. | BY WHOM. |
|---|---|---|---|
| Hyderabad (Sinde) ... | Lahore ... | 736 | Mr. Smith, Offig. Dty. Supdt. |
| Kurrachee (Scinde) ... | Hyderabad ... | 106 | Ditto |
| Secunderabad, Deccan ... | Mirzapore ... | 832 | Mr. Nowill, Officiating Deputy Superintendent. Baboo Sibchunder Nundy, 1st Class Inspector. |
| Hooghly River, opposite Diamond Harbour | Midnapore and Jelasore ... | 126 | Mr. O'Donnell, Dy. Supdt., Mr. Munden, 2nd class Inspector. |
| Bombay ... | Calian and Bulsar ... | 158 | Mr. Owen, Dy. Supdt. |
| Poona ... | Amednugger ... | 75 | Mr. Wright, 1st Class Inspector, |
| Vingorla ... | Goa ... | 36 | and others. |
| Cawnpore ... | Calpee ... | 50 | |
| Allahabad ... | Pertabghur ... | 160 | Mr. Harrington, Officiating Dy. |
| Lucknow ... | Fyzabad and Gonda | | Superintendent. |
| Futtyghur ... | Shajehanpore ... | 52 | Mr. T. Browne, Assistant Deputy Superintendent. |
| Umballa ... | Simla ... | 80 | Mr. Naylor, 1st Class Inspector. |
| Rawul Pindee ... | Murree ... | 30 | Mr. Walton and others. |
| | Total miles ... | 2,441 | |
| | Previously open... | 7,682 | |
| | Total now in use ... | 10,123 | |

4. New lines are in progress from Benares to Patna, Dacca to Chittagong and Akyab, and branches from the East Coast line to Coconada, Coringa, Masulipatam, and Calingapatam. A second wire is to be placed immediately on the present supports between Allahabad and Benares, by which the line from Allahabad to Calcutta will be doubled.

## OFFICES.

5. The following Offices have been opened since last Report:

BENGAL.

Midnapore.
Contai.
Jellasore.

N. W. PROVINCES AND PUNJAB.

Fyzabad.
Gonda.
Kussowlie.
Simla.
Murree.
Shahjehanpoore.

SCINDE AND PUNJAB.

Sukkur.
Shikarpore.
Jacobabad.
Rajunpore.
Taroosha.
Mooltan.
Kusmore.

} Completing chain of stations from Kurrachee to Lahore.

BOMBAY.

Bulsar.
Seroor.
Ahmednuggur.
Goa.

EAST COAST CIRCLE.

Berhampore.
Ongole.
Coconada.
Masulipatam.

CENTRAL INDIA CIRCLE.

Chanda.
Chinnoor.
Warrungul.
Nagpore.
Seonee.
Jubbulpore.
Rewah.

} Completing chain of stations from Madras and Bombay main line at Bellary to Mirzapore and Benares.

being in all 30 new Offices opened in India since October, 1858, as shown in the annexed list, *Appendix No.* 1, in which all the stations are arranged according to their geographical position. The total number of offices now open to the public is 154.

6. Late in October last, the Ceylon lines were completed, and joined to those of the Indian continent at Paumben. The Government of Ceylon has been pleased to place their lines and offices under my control as part of the Indian system, and they have adopted the Indian rates for messages, and the rules affecting their transmission.

## GENERAL WORKING OF THE LINES.

7. The lines between Calcutta and Allahabad, in the North-Western Provinces, the Punjab, Madras, Bombay, Indore, and Ceylon Circles, all work satisfactorily. The East Coast line also works well from Madras to Jelasore. I write on the 11th of July, one month after the setting in of the monsoon on the West Coast, in Bombay and Bengal. The mail steamer *Madras* arrived at Bombay yesterday, with the mails from England of the 18th June. The first bulletin of public news, 140 words, was

despatched from Bombay at 8-40 A.M., reached Madras, Ootacamund, and all stations on the West Coast at 10-30 A.M., Indore, and Agra, at 10 A.M., and Calcutta, *viâ* Agra and Benares, at 12-47, P.M., or in four hours and seven minutes. The commercial intelligence message and second bulletin of 440 words were received in Calcutta at 3-25 P.M. the same day. As copies of the mail news are taken at every intermediate station, and the weather was bad on a great part of the line, the rate of progress above noted could scarcely be surpassed.

## INTERRUPTIONS.

8. Total interruption, or very imperfect communication, exists on the following lines.

*Bombay and Bulsar.*—Total interruption, doubtless caused by malconstruction of the line, and by the exceeding difficulty of travelling along it after the first fall of rain.

*Rajunpore and Shikarpore, in Scind.*—Line broken and posts swept away by sudden inundation of the Indus. I consider the Deputy Superintendent and his Inspectors free from all blame in this case.

## IMPERFECT COMMUNICATION.

9. This I regret to state is of almost constant occurrence between Calcutta and Kedgeree, Diamond Harbour and Midnapore, and Kedgeree and Jelasore.

10. This petty section of the Bengal line, although close to Calcutta, is by far the worst worked of any in India. The value of the East Coast line is thus greatly diminished. As far North as Balasore the lines and offices work well; beyond that the Telegraph is commonly distanced by the dawk.

11. The Deputy Superintendent in Bengal, Mr. O'Donnell, attributes the failure of this section of his circle to the excessive unhealthiness of the stations, and the prevalence of fever among the Signallers, and he describes in earnest terms the great difficulties he has to contend with. But making all due allowance for the circumstances on which he dwells, I am constrained to say that I have proof before me of much want of foresight and precaution on the part of the Inspectors, and of gross neglect among the Assistants in charge of offices, and the Signallers on duty,* I regret to add that similar mismanagement and neglect prevail among the Inspectors and Assistants on the lines from Burdwan to Patna and Benares. A total change of hands will prove the best remedy for these incessant interruptions, and measures are now in progress to effect this change.

* On the 29th July the "Candia" mail steamer arrived at Galle at 8 A.M. The 1st Bulletin of Mail News was despatched at 8-50 A.M.

| | | |
|---|---|---|
| Reached | Madras | at 10 A.M. |
| " | Vizagapatam | at 10-40 A.M. |
| " | Cuttack | at noon. |
| " | Balasore | at 1-47 P.M. |
| " | Kedgeree | at 1-52 P.M. |
| " | Diamond Harbour | at 2-30 P.M. |
| " | Calcutta | at 7-30 P.M. |

and was thus detained between Diamond Harbour and Calcutta, only 30 miles, for five hours, a longer time than it took to pass between Galle and Diamond Harbour (miles 1,500); the same Bulletin reached Bombay exactly at noon, being three hours and ten minutes from Galle.

12. In Central India, the offices newly opened at Nagpore, Seonee, Jubbulpore, and Rewah, are as yet inefficient. The same remark applies to the offices between Sukkur and Mooltan in Scinde. It seldom happens, however, that newly constructed lines and recently opened offices work well for the first season. By October next the line from Bellary to Mirzapore, and Hyderabad to Lahore will, I have no doubt, be in perfect working order.

## EXTENSION OF THE MORSE SYSTEM OF SIGNALLING.

13. The American system of signalling has been extended since my last report to the following Circles and Offices, as fast as instruments arrived from Berlin:

In Bengal.

Diamond Harbour.
Midnapore.
Jellasore.

In N. W. Provinces.

Agra.
Allyghur.
Delhi.

Bombay.

Bulsar.
Surat.
Baroda.
Baroach.
Ahmedahad.
Deesa.
} Instruments arranged and set up by Mr. St. Albin.

Scinde.

Kurrachee.
Hyderabad.
Kotree.
Budeena.
Nuggur Pakur.

Madras.

Mercara.
Cannanore.
Calicut.
Cochin.
} Instruments arranged and set up Mr. Sabine.

East Coast.

Chicacole.
Ongole.

South East Coast.

Negapatam.
Pootoocotta.
Paumben.

14. American Instruments are now on the way to Secunderabad for the Central India line, and have also been sent to Ceylon, where Mr. Moberley is engaged in their introduction in all the offices from Galle to Manaar inclusive.

15. Great progress has been made in the improvement of the Signallers in the new system. In many of our offices, messages are now received by *ear* as distinctly and accurately as if the instrument were speaking in our usual language. The quickness with which messages can be received in this way is astonishing.* Mr. Hills at Mysore can receive 40 words per minute spelt in full. In fact, the practical limit to the rapidity with which messages can be transmitted *auricularly*, is the rate at which they can be distinctly written down by the receiver, and this is ordinarily not more than

* *Note.—Extract from "Lardner on the Electric Telegraph" p. 68.*

"The most expert Telegraphists are able to take down the messages in this manner by *ear*, and so correctly that there is no need for subsequent verification. It is only however the most expert Telegraphists who can operate in this way. The salaries allowed to different agents vary according to the skill they attain. One who acquires the power of taking down rapidly and correctly by *ear*, will receive twice the amount allowed to him who can only take down by *eye*, the latter being always much slower than the former."

twenty words per minute. This faculty of interpreting signals by ear is so highly valued in America, that the Signallers who excel in it, receive double the salaries paid to those who read only from the indented paper tape.

16. The great extension of the lines, and the opening of 28 new Morse Stations since my last Report, have enabled me to provide fairly for many of the "Morse Assistants from England," originally 74 in all. Several who have shown special aptitude for line duties have been employed as Inspectors; some have been permitted to accept Cadetships and other appointments out of the Department, on repayment of part of the sum advanced to them in England for passage and outfit; three have returned to Europe in ill health; of the 74, there now remain but 12 on the Signallers' list, and on the minimum rate of pay, and of these 12, there are some whose services may be dispensed with, with advantage, on the expiration of their three years' agreement.

17. The following memorandum shows how the class has been disposed of:

| | | *Monthly Salary.* |
|---|---|---|
| 3 | Appointed Deputy Superintendents on ... ... | Rs. 400 |
| 9 | 1st Class Inspectors ... ... ... | „ 250 |
| 18 | 2nd Class Inspectors ... ... ... | „ 150 |
| 1 | Auditor of accounts ... ... ... | „ 250 |
| 20 | Assistants in charge of offices... ... ... | „ 130 to 150 |
| 3 | Gone to Europe in ill health. | |
| 4 | Accepted other employments. | |
| 1 | Killed at Indore. | |
| 1 | Left Department without leave. | |
| 12 | Remain as Signallers on Minimum pay of ... | Rs. 100 |
| * 1 | In Printing Department ... ... ... | „ 100 |
| 1 | In charge of workshops ... ... ... | „ 200 |
| 74 | | |

## BUSINESS OF OFFICES DURING THE YEAR.

### Private Messages.

18. The cash receipts for all India during the year, including the portion due to Ceylon, are shown in the annexed statement:

### CASH RECEIPTS IN EACH MONTH.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| May | 1858 ... | ... | ... | ... | Rs. | 22,359 | 0 | 0 |
| June † | „ ... | ... | ... | ... | „ | 18,997 | 0 | 0 |
| July | „ ... | ... | ... | ... | „ | 15,495 | 0 | 0 |
| August | „ ... | ... | ... | ... | „ | 17,174 | 0 | 0 |
| September | „ ... | ... | ... | ... | „ | 16,506 | 0 | 0 |
| October ‡ | „ ... | ... | ... | ... | „ | 18,869 | 11 | 0 |

* Draws also salary as Printer to "Home Office" Rupees 250. Total Rupees 350 per mensem.

† Line between Madras and Calcutta broke down in June, and continued useless till October.

‡ Coast line again in use, and the old line between Bombay and Agra restored.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| November | 1858 ... | ... | ... | ... | Rs. | 24,158 | 0 0 |
| December | „ ... | ... | ... | ... | „ | 25,685 | 0 0 |
| January | 1859 ... | ... | ... | ... | „ | 29,892 | 15 0 |
| February | „ ... | ... | ... | ... | „ | 29,563 | 5 0 |
| March | „ ... | ... | ... | ... | „ | 31,451 | 10 0 |
| April | „ ... | ... | ... | ... | „ | 32,956 | 5 0 |

## SERVICE MESSAGES.

19. The value of messages conveyed on public service, and rated *pro formâ* at the same price as private messages is shown as follows:

| | | | | | | |
|---|---|---|---|---|---|---|
| May 1858, | ... | ... | ... | Rs. | 33,477 | 0 0 |
| June | ... | ... | ... | „ | 29,931 | 0 0 |
| July | ... | ... | ... | „ | 22,734 | 0 0 |
| August | ... | ... | ... | „ | 24,022 | 0 0 |
| September | ... | ... | ... | „ | 26,133 | 0 0 |
| October | ... | ... | ... | „ | 35,165 | 5 0 |
| November | ... | ... | ... | „ | 41,338 | 0 0 |
| December | ... | ... | ... | „ | 37,577 | 4 0 |
| January | 1859, | ... | ... | ... | „ | 34,814 | 14 0 |
| February | ... | ... | ... | ... | „ | 30,726 | 14 0 |
| March | ... | ... | ... | ... | „ | 28,738 | 9 0 |
| April | ... | ... | ... | ... | „ | 21,969 | 6 0 |

20. From the 1st of May this year, the system of charging for *service* messages has been totally changed, in consequence of the abuses which arose from the privilege of sending such messages without payment. Every service message is now paid for in cash previous to despatch, and the right of priority of transmission has been abolished, except for certain special cases of indisputable emergency

21. The effect of this change has been to reduce the service messages from Rupees 28,738-9 in March, and Rupees 21,969-6 in April, to Rupees 10,571-10 in May, and Rupees 6,449-14 in June, the two first months of the enforcement of cash payments. The lines have thus been cleared of a vast amount of work of little or no public value, but which caused more delay to the transmission of private messages than all other causes of interruption taken together.

## NUMBER AND LENGTH OF MESSAGES SENT.

22. The total number of messages sent in all India, Pegu, and Ceylon, from the 1st May, 1858 to 30th April, 1859:

| | |
|---|---|
| Private and service, not including those sent on telegraph business ... | 1,57,834 |
| Of which private ... ... ... ... ... | 1,01,164 |
| Service ... ... ... ... ... | 56,670 |

The length of the several messages is

PRIVATE.

| | | |
|---|---|---|
| Words 1 to 16 ... ... ... | Messages | 55,299 |
| Words 17 to 24 ... ... ... | ditto | 23,220 |
| Words 25 to 32 ... ... ... | ditto | 14,298 |
| Words 33 to 48 ... ... ... | ditto | 6,099 |
| Words 49 and upwards ... ... | ditto | 2,241 |

SERVICE MESSAGES.

| | | |
|---|---|---|
| Words 1 to 16 ... ... ... | Message | 4,864 |
| Words 17 to 24 ... ... ... | ditto | 7,828 |
| Words 25 to 32 ... ... ... | ditto | 10,607 |
| Words 33 to 48 ... ... ... | ditto | 16,876 |
| Words 49 and upwards ... ... | ditto | 16,497 |

23. Of the 1,01,164 private *messages*, 39,724 were sent by natives, being 39·26 per cent.

24. Of the 1,01,164 private messages there were sent from

| | | Of which by Natives. |
|---|---|---|
| Bengal Stations ... ... ... | 19,474 | 8,606 |
| Bombay Stations ... ... ... | 28,334 | 17,647 |
| Madras Ditto ... ... | 18,676 | 4,204 |
| N. W. P. and Punjab ... ... | 13,154 | 2,285 |
| East Coast ... ... ... | 2,465 | 381 |
| Central India ... ... ... | 1,700 | 674 |
| Indore ... ... ... | 3,543 | 1,866 |
| Dacca ... ... ... | 230 | 59 |
| Pegu ... ... ... ... | 5,438 | 2,398 |
| Scinde and Punjab ... ... | 2,040 | 487 |
| Ceylon ... ... ... ... | 6,110 | 1,117 |

25. The cash received for *private* messages in the year under report, is Rupees 2,95,511-2-9

The value of service messages, charged at same rates „ 3,64,739-1-7

Total cash value of work done „ 6,60,250-4-4

26. The proportion of cash receipts in the different circles is as follows:

| | | | |
|---|---|---|---|
| Bengal ... ... ... | Rupees | 81,335 | 11 0 |
| Bombay ... ... ... | „ | 86,162 | 8 1 |
| Madras ... ... ... | „ | 46,465 | 8 3 |
| N. W. P. and Punjab ... ... | „ | 26,663 | 15 4 |
| East Coast ... ... ... | „ | 6,956 | 1 0 |
| Central India ... ... ... | „ | 4,381 | 2 6 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Indore | ... | ... | ... | ... | Rupees | 8,137 | 8 0 |
| Dacca | ... | ... | ... | ... | „ | 420 | 12 0 |
| Pegu | ... | ... | ... | ... | „ | 11,469 | 15 0 |
| Scinde | ... | ... | ... | ... | „ | 4,943 | 7 0 |
| Ceylon | ... | ... | ... | ... | „ | 18,524 | 12 0 |

## GREAT REDUCTION IN CHARGES.

27. Early in April this year, the Government of India were pleased to sanction a very great reduction in the charges for the transmission of private messages.

28. The principle of charging by the length of line traversed was given up, and that of the geographical distance adopted. Thus, a message of 16 words sent to Bombay *viâ* Agra, which cost 4 Rupees, the length of line being 1,600 miles, is now charged by distance on the map, at 3 rates only, or 3 Rupees. By this new rule the cost of all ordinary private messages sent between Bombay and Calcutta, is reduced 25 per cent.

29. Commercial and business messages, previous to the change, were charged one-half extra for *repetition*: thus, a message of 16 words on opium or banking business cost six Rupees; it is now transmitted for three Rupees, being a reduction of 50 per cent. Messages in numerical cipher, formerly charged at triple rate besides half extra for repetition, are now reduced to the ordinary tariff. Thus a cipher message of 16 figures, each charged as a word, which between Bombay and Calcutta cost 18 Rupees,* is now sent for 4-8-0 only, including one half extra for repetition.

*16 words 4½ Rupees
4 rates.
18 Rupees.

30. The charge for messenger hire on delivery of messages has been reduced from 4 annas (6*d.*) to 2 annas per mile.

31. A most important change has been sanctioned in the mode of charging for the number of words. Up to April last the rates for words sent 400 miles or under, were for

| | | | | | Rs. | As. | P. |
|---|---|---|---|---|---|---|---|
| 16 words | ... | ... | ... | ... | 1 | 0 | 0 |
| 17 to 24 „ | ... | ... | ... | ... | 1 | 8 | 0 |
| 25 to 32 „ | ... | ... | ... | ... | 2 | 0 | 0 |
| 32 to 48 „ | ... | ... | ... | ... | 3 | 0 | 0 |
| 48 to 64 „ | ... | ... | ... | ... | 4 | 0 | 0 |

so that a single word above the limit of the group, caused an entire additional rate to be charged; thus for 32 words from Calcutta to Benares, the charge was *two* Rupees, for 33 words three Rupees.

32. This system caused great inconvenience to the public and the department. Every effort was made to cramp a message within the fewest possible words by the omission of auxiliary verbs, conjunctions, &c., the effect of which was in many cases so to

obscure the sense of the despatch, as to render it unintelligible to the recipient; besides this, all experience shows that, while a message couched in ordinary words passes over thousands of miles free from transit errors, one in enigmatical and obscure terms becomes "confusion worse confounded" at every repeating station, and generally reaches its destination in a totally unintelligible state.

33. The mode of charging is now changed to one anna for each word above 16, for 400 miles. Thus a common message of 33 words from Calcutta to Bombay, formerly charged 12 Rupees, is now sent for Rupees 6, annas 3, the three annas being for one word above 32 sent over three distances, each of 400 miles.

34. Further, in the address, permission has been granted by Government for the free transmission of all ordinary *prefix* designations, Civil or Military, such as Lord, Sir, Baboo, Nawab, Colonel, General, &c. but *affix* titles are still charged to prevent the occupation of the line by the long string of official and complimentary designations so commonly used in this country, especially among native correspondents.

35. The effect to the public of these numerous changes and reductions has been to render the Indian Telegraph tariff in a very large degree the cheapest in any country.

DISTANCES BY THE LINE

| A message of 25 words sent in England for a | Miles. | £ | s. | d. | Rs. | A. |
|---|---|---|---|---|---|---|
| distance of ... ... | 150 | costs 0 | 4 | 0= | 2 | 0 |
| From London to Marseilles ... ... | 815 | „ 1 | 5 | 6=12 | | 12 |
| „ London to Vienna ... ... | 1,206 | „ 0 | 19 | 6= | 9 | 12 |
| „ London to Trieste ... ... | 1,526 | „ 0 | 19 | 6= | 9 | 12 |
| „ London to St. Petersburgh ... | 1,877 | „ 1 | 13 | 6=16 | | 12 |
| „ London to Constantinople ... | 2,181 | „ 1 | 19 | 6=19 | | 12 |
| „ New York to New Orleans ... | 2,000 | „ 0 | 18 | 9= | 9 | 6 |

while the same number of words sent from

| | Miles. | | Costs. | | |
|---|---|---|---|---|---|
| Calcutta to Benares ... ... | 400 | ... | Rs. | 1 | 9 |
| Calcutta to Agra ... ... | 800 | ... | „ | 3 | 2 |
| Calcutta to Madras ... ... | 925 | ... | „ | 4 | 11 |
| Calcutta to Bombay (1,600 miles by the line, but charged by the map as 1,200 only) same as London to Vienna... | | | „ | 4 | 11 |

| | *Miles.* | Ceylon. | Miles. | | Cost. | | |
|---|---|---|---|---|---|---|---|
| | | Galle to Kurrachee | 1,650* | ... | Rs. | 7 | 13 |
| *By the line over | ... 2,000 | Ditto to Peshawur | 2,100† | ... | „ | 9 | 6 |
| †By line over | ... 2,600 | | | | | | |

36. The change of rates came into operation about the middle of April, and we have now had two clear months' experience of the results as regards the amount of cash collections, and the influence of the change on the number of messages.

| | | | | |
|---|---|---|---|---|
| The receipts in March‡ were ... ... | Rs. | 31,451 | 10 | 0 |
| April§ ... ... | „ | 32,956 | 5 | 0 |
| May‖ ... ... | „ | 31,943 | 1 | 0 |

‡ Former charges. § Half the month reduced rates. ‖ Reduced rates for entire month.

Showing clearly that the reduction has caused no financial loss, the difference being made up by increase of the number of messages transmitted. Several interesting facts in illustration of this effect have been communicated by the Deputy Superintendents of circles, of whose reports a brief analysis is subjoined.

37. Mr. O'Donnell, Deputy Superintendent, Bengal, states, that previous to the reduction of charges, the average number of paid messages sent from Calcutta in each month was 1,158, average value Rupees 4,611.

During the last two months since the reduction, average number of messages 1,933, average value Rupees 4,590, increase in number being over 66 per cent.

Repetition at half price extra was compulsory up to April; after that, optional. Accordingly Mr. O'Donnell reports that for 12 months before the new rule, the average number of private messages paid for at repetition price was ... 442
Last two months ... ... ... ... ... 537 showing an increase of nearly one-fourth.

38. As regards *service* messages, Mr. O'Donnell reports that, under the rule of free transmission, the monthly average number was ... ... 274
Since cash payment has been enforced ... ... 179

39. Mr. O'Donnell lastly states that the number of depositors' messages paid for at other stations has greatly increased since the introduction of the new rules; nearly half the commercial messages sent from Calcutta are *bearing*, and not included in the above return.

40. From Bombay, Mr. Walton reports:—"The new rules have caused a considerable increase in private and mercantile messages, and although the prices are reduced, the receipts have increased very much. The service messages are reduced in number about 80 per cent., and those now sent are concise and short. Any further reduction in prices would cause the lines in this Presidency to be constantly choked. The number of *repetition* messages has decreased about one-half."

41. From Madras, Mr. Blissett reports that "the number of messages has increased 20 per cent., and the cash receipts fallen about 11 per cent., and the *repetition* messages are one-half less numerous than before.

"The service messages have decreased over 50 per cent. in number, and 66 per cent. in length."

42. From the Indore Circle, Mr. Todhunter reports that "the effect of the new rules has been to increase the number of private messages by one-third, and that service messages have been reduced in number and in length to one-sixth."

Reports to the same effect have been received from the Dacca Circle, from Captain

McGrath; from Central India, from Mr. Nowill; from the North-Western Provinces and Punjab from Mr. Harrington; and from Scinde from Mr. Smith.

43. The evidence is accordingly conclusive, that the objects proposed by Government in the reductions and alterations described, are being rapidly and successfully accomplished, and that an important benefit has been conferred on the public. I entertain confident hope that the business and usefulness of the Department will be largely increased through these changes.

## ERRORS AND COMPLAINTS.

44. The chief improvement remaining to be accomplished in the working of the offices is the reduction of the proportion of "errors." Towards this subject our best exertions are now applied. The hurry of construction and re-construction being over, and many highly respectable and competent Assistants set free from the lines to devote themselves to office supervision, a short time will bring about great increase of accuracy in every circle.

## CAUSES OF ERRORS.

45. As the American Instruments are now in use on all the great lines, there is no longer any ground for supposing imperfect or faulty instruments to be the chief cause of errors.

46. This is to be traced in almost all cases to inexperience or neglect on the part of the signallers, and still greater neglect on that of the "Assistants in charge" of offices, in allowing obviously erroneous messages to be sent out without their supervision or correction.

47. The inexperience of many of the signallers is a drawback to our successful operations, due to the rapid and enormous extension of our lines, and increase of offices, beyond the rate at which well-trained signallers could be provided. For 150 offices now open, there should be at the very least 800 thoroughly practised signallers. We have not as yet half that number; six months' constant practice is necessary to render a signaller perfectly competent for his duties.

48. It has commonly happened, too, that messages which had been received with perfect accuracy have been made over to ignorant copying clerks, the copies sent out without examination, and subsequently found to be full of errors. The employment of copying clerks in the Message Department has therefore been prohibited in all the offices, and orders given that each message shall be sent out in the hand-writing of the signaller by whom it was received, and under the signature of the Assistant in charge. When these instructions are faithfully carried out, the cause of errors now under consideration is at once remedied.

49. The general detection of errors rests chiefly with the local Examiner's Office in each circle, and the final examination of the files of copies of all messages sent into the Chief Superintendent's Office by every station in India and Ceylon. In the local

Examiner's Office, every message received in or passing through the circle is tracked and compared. In the general Examiner's Office every case of *complaint* is investigated by tracking the message through all the circles. The results are interesting. The errors in the actual signalling are in nearly all cases committed by the receiver not by the sender. Nearly all are phonetic, words of similar sound being taken without reference to sense. More than 90 per cent. of the errors are numerical, although we never allow figures to be telegraphed as such, but every sum is expressed in words as in a cheque. Names of persons and places are next in order, in the proportional number of errors, and this happens in Europe and America just as commonly as in India. We now take the precaution of signalling every name twice, and having it repeated back by the receiver once, and we are thus rapidly diminishing the number of these mistakes. It sometimes happens, however, that through the gross ignorance or carelessness of an assistant, ludicrous errors are perpetrated, which any one of common sense or education could have rectified. In a late issue of mail news from the Calcutta Office, we were told that the Franco-Piedmontese Army had defeated the Austrians at *Versailles* (instead of *Varese*), and last year the Bangalore Office informed the public that the Government of India was to be "transferred from the East India Company to *Brown!*"

50. But notwithstanding the causes of error above adverted to, the actual proportion of erroneous words in the total number of words transmitted is extraordinarily small. I forward an *abstract* of the tabular returns of inaccuracies received from the Bengal Examiner for the year now under report, and one of the full weekly returns, as a specimen of the manner in which the plan is carried out.

The abstract return shows for the year

| | |
|---|---|
| Messages sent ... ... ... | ... 22,657 |
| Messages in which errors occurred ... | ... 492 = (2·17 per 100) |
| Total number of words in all messages ... | ... 5,25,617 |
| Total number of erroneous words ... | ... 689 |
| Proportion of errors ... ... | ... 0·131 |

or one error in every 762 words. *

51. The Bengal Examiner's returns are apparently the most accurate of any I receive. It will be observed that they refer only to the business transacted in the Bengal Circle.

52. The results in the Madras and Bombay Circles are somewhat inferior, are less accurately tabulated, and are much in arrears. In the North-Western Provinces, till within the last three months, the errors have been very discreditable in number and nature; on the new lines worst of all, but this was to be expected.

53. To test the whole system collectively, if the messages for one entire day, for all the offices in India, be examined in detail, the result is better than could be fairly

* It has been ascertained since this Report was drawn up that these returns include none but *Repeated* messages, while all the other circles give the general result of the examination of all messages, whether repeated or not.

looked for, all the circumstances considered. This is illustrated by an occurrence which took place in the Calcutta Office on the 8th of November last. On that day, a stupid copying clerk in that office sent to the Secretary of Government a manuscript copy of "mail news" full of absurd blunders. The Secretary naturally attributed this to the Telegraph itself, concluded that the messages all over India were of the same faulty character, and expressed his opinion accordingly in very strong terms of censure. It was found, however, on reference to the daily files of all the messages *received* in India on that day, there were 5,997 words transmitted, of which 12 only were erroneous, misspelt, or doubtful, being one erroneous word in 499. The original transcripts of all the messages in question, as received from each office, with the signature of the receiving signaller, were submitted to Government for verification. The result enabled me to state with perfect confidence that no lines in existence of equal extent could exhibit a smaller proportion of errors, or a greater degree of accuracy in all ordinary work.

## SCHOOL OF SIGNALLERS AT COONOOR.

54. In connection with the subject thus noticed, I should allude to the School of Signallers recently opened, under the sanction of Government, at Coonoor, in the Neilgherries.

55. Lads of European or East Indian parentage are received in this school between their 14th and 16th years, on passing a strict examination in spelling from dictation. They enter as Probationers on 30 Rupees per mensem, from which the cost of their board and washing is deducted. They reside on the premises, and are taught signalling by Mr. Knop, an experienced Assistant, a man of mature age, and most assiduous and successful in the discharge of his duties. Mrs. Knop attends to the diet, dormitory, washing, &c.

56. In the Coonoor School, Mr. Knop *commences by the auricular* method; after that is mastered, reading by the indented paper tape is learned in a single lesson. Those who cannot receive moderately well by ear after two months' training, are removed from the Department.

57. A branch line of telegraph has been erected on slight temporary supports from Coonoor to Ootacamund,* and a Morse Instrument provided at each end. On these instruments the pupils practice constantly. When reported fit for the service by Mr. Knop, they undergo an examination, and are placed on duty on 50 Rupees per mensem in the Ootacamund Office. Here they learn all the details of office business, such as charges for messages, rates for distances, the rules for repetition, precautions against errors, &c.

* A European Artificer has been placed in charge of this temporary line which leads over a mountainous country, and presents every variety of span and curve; under his instruction the lads are taught how to erect posts, strain wire, cast ingot joints, and make themselves thoroughly familiar with all *line* duties.

58. After two months' duty at Ootacamund, which is a terminal or single instrument station, they proceed to Bangalore, a triple station, where a large amount of transit business is transacted, and where a work-shop has been established for supplying all Southern and Central India, Ceylon, and Bombay with spare relays, batteries, lightning-protectors, &c., and for the repair of all instruments; at this work-shop the young signallers are taught the adjustment, cleaning, and ordinary repairs of their instruments, &c.

59. After two months thus spent at Bangalore, they are sent on duty wherever their services are required. They are bound by indenture to serve for five years, and their progress and promotion in the Department depend altogether on their own exertions and steadiness.

See Bond in Appendix.

60. The Coonoor School has been established but three months, and is now just beginning to send out its first pupils. I have visited the class frequently, and I am happy to report most favorably on the zeal and assiduity with which Mr. Knop performs his duties. I am taking measures to supply him with Probationers in regular monthly batches, and I shall arrange so that he will be enabled to supply the lines every month with at least six signallers perfectly proficient in signalling by *sound*.

61. The cost of the school has added but 140 Rupees to the monthly expense of the establishment generally; as Mr. Knop continues in charge of the Ootacamund Office on his regular salary of Rupees 150 per mensem; the European Artificer is on the general establishment, and merely detached on this duty; and the allowance for the Probationers is what they would otherwise draw if employed as heretofore in the various offices along the line.

| | |
|---|---|
| House rent ... ... | Rs. 80 |
| Of Coonoor premises | |
| Peons ... ... | „ 10 |
| Extra allowance to Mr. Knop ... ... | „ 50 |
| Total ... ... | Rs. 140 |

62. On the whole, I am of opinion that the Coonoor School promises to become one of the most useful and important branches of this Department. Its extension and improvement seem to me to deserve every encouragement.

## THE WORK-SHOP FOR SOUTHERN INDIA AND CEYLON.

63. This work-shop is now in full operation, and proves of great value. It supplies all articles indented for from Bombay, Central India, the East Coast, Madras, and Ceylon; about 75 offices, and 5,000 miles of line. The work-shop is under the ultimate control of Mr. Blissett, the Deputy Superintendent of Madras (a most accomplished mechanist and artist), and is at present under the direct management of Mr. William Biddulph, one of the Morse Assistants from England, who has shown a special turn for this branch of our business, and is most indefatigable in keeping the large native establishment constantly employed, while he tests by scientific means all the instruments they turn out.

## HORSE PATROL.

64. Experience having shown in the Madras, Bombay, and Guzerat Divisions that the ordinary means of transit in the country could not be depended upon to enable an Inspector or Artificer to travel rapidly along his section in case of interruption, and the native line guards who were retained, one for every five miles, having proved totally useless in preventing interruptions, or restoring communication, I have dismissed the whole of the line guards, and established a Mounted Patrol, whose services are already proving of the utmost value.

65. In Madras and Mysore, the Patrols are Europeans or East Indians, are young active fellows, mounted on stout ponies. Each man is entrusted with 25 miles of line, in

the centre of which he resides in a hut built for him at the public cost, at an average expense of 100 Rupees. He patrols his section twice in each week from end to end on fixed days. In case of an interruption on any other day, a Mounted Inspector starts at once from the station at each end of the line, rides at full speed to the hut of the nearest Mounted Patrol, and starts him along the line to the next post, and so on. Each Patrol carries a coil of light wire, block, and tackle, a small coil of rope, bellows, zinc, and ladle for casting joints, in all weighing 48 lbs., packed in two saddle bags. He is thus able to make a permanent joint at once wherever the line is broken. The men are known personally to all the Native police authorities and head men along the roads, and receive prompt and willing aid from them on all occasions, in supplying such labor and material as may be required in cases of interruption.

| | | | | | |
|---|---|---|---|---|---|
| The pay of each mounted patrol is ... | ... | ... | Rs. | 25 |
| With keep of horse ... | ... | ... | ... | „ | 15 |

66. In Bombay, Native Artificers (Muccadums) are employed on this duty, and with remarkable success.

67. My special thanks are due to Mr. Straughan, acting 2nd Class Inspector at Bangalore, for the success with which he organized this system. He selected the ponies, taught the men their duties, supplied the tools, planned the huts, told off the patrols to their posts, and did the whole without bustle or trouble to any one in less than four months from the time he received his instructions.

68. The plan has proved so successful in preventing line interruptions, and in restoring communication rapidly, that I hope to introduce it next season in every circle in which horse or camel transit is available. Along the East coast, in the Dacca and Pegu Circles, it is only by boat the lines can be patrolled, or reached at all, in the rainy season.

## TIME BALLS.

69. Since my last report, Electric Time Balls for showing true time to the shipping have been erected in Calcutta, by Mr. Cribble, in Madras by Mr. Blissett, and in Bomby Mr. Owen, in connection, with the Observatories at these cities. The Balls and the electric mechanism for their discharge were manufactured in England under my own personal direction.

70. In Calcutta there was a great deal of bungling and mismanagement in the erection of the apparatus, until Mr. Cribble, of the Telegraph work-shop, took it in hand. In Madras and Bombay, Mr. Blissett and Mr. Owen have been perfectly successful, and the reports from the Observatories show that their arrangements have proved of great benefit to the shipping at those ports.

## PREVENTION OF ACCIDENTS BY LIGHTNING.

71. I have peculiar pleasure in reporting the entire success of the measures I have adopted since my return to India for the prevention of accidents by lightning, especially as regards the valuable Morse Instruments now in use in most of our offices.

72. Previous to the introduction of these instruments, my only object was to protect the signallers and the buildings from serious injury, and in this our arrangements were perfectly sufficient. The lightning plates in every instance carried the most violent discharges to the earth, there only passing to the instrument table a fraction of the discharge sufficient to burn a fine wire, and give a disagreeable shock.

73. So long as we used the little coil instruments which have done so much work in our offices, we allowed the lightning to expend them without economy. It was little more trouble to replace a coil than to mend a pen or cut a pencil, and the value was not worth a thought. But now, a Morse Instrument costs 300 Rupees, and not one spare instrument is yet in store. A lightning spark reaching the relay burns the fine wire, and disables the instrument altogether; and thus paralyzes the work of the whole line. This happened frequently last year, and caused a great number of prolonged interruptions.

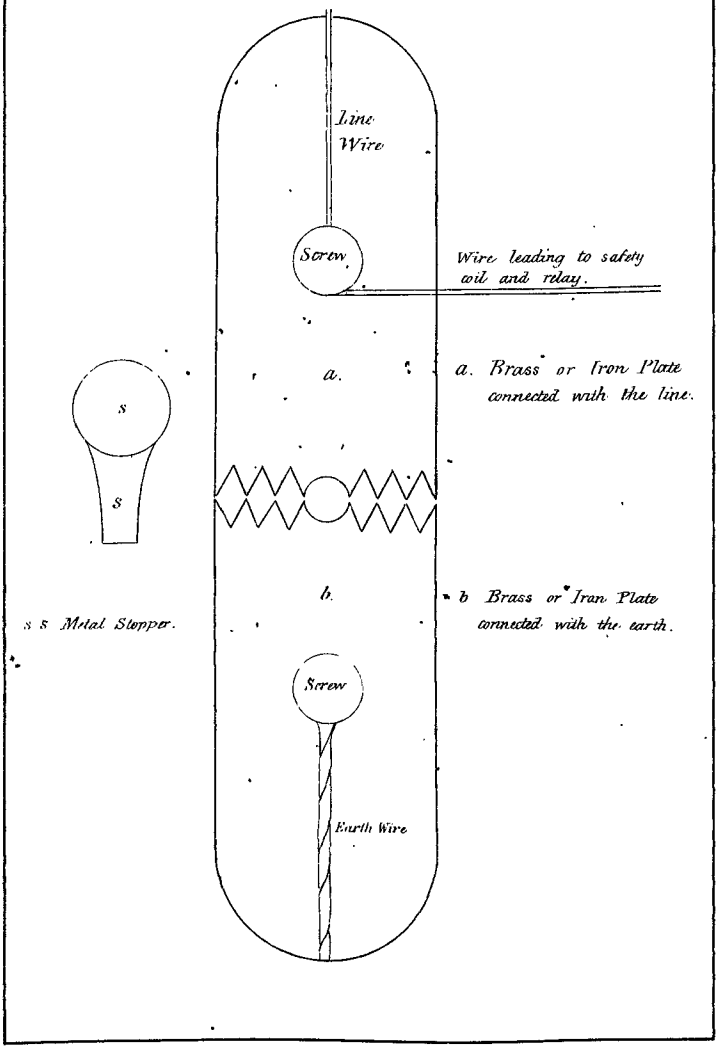
74. This year, by a very simple expedient, the instruments have been saved without a single exception. A coil of 20 yards of very fine wire is placed between the lightning plates, and the signalling currents, as well as the fraction of the lightning flash adverted to in paragraph 68, pass through this coil. Any spark strong enough to injure the instrument meets its first resistance in the *safety coil*, burns this, and passes through the lightning plates to the earth.

75. Reports have reached me from nearly every office, of the invaluable effects of these safety coils. During this season, the Indian end of the Manaar cable was saved by their use. In the Bangalore Office five coils were burned in a single thunder-storm, thereby saving five instruments. In the Ootacamund Office thirteen explosions occurred in two hours, and as many coils were expended without damage to the instruments, or harm to the signallers.

76. In addition to these safety coils, and the lightning plates formerly and still in use, I have had brass plates of the shape and size shown in the annexed Plate attached to the line and earth wires, where the line enters the office. The upper plate is part of the line, the lower plate is in contact with the earth by a thick copper rope. A circular opening between both can be closed by a metal stopper having an ivory handle. The signaller is by this contrivance enabled to change the coil when burned, without any danger to himself. He places the stopper in the aperture, thus connecting the line with the earth, and then he changes the coil. Without this precaution it is exceedingly dangerous to touch the burned safety coil during a thunderstorm.

77. The value of this precaution was well illustrated in the Ootacamund Office on Sunday, the 1st of May. During a very violent thunder-storm, the safety coil was burned. Mr. William Biddulph, one of the Morse Assistants, proceeded to replace it by a fresh coil, having first inserted the stopper between the plates. When the new coil was ready, he was in the act of withdrawing the stopper, when a terrific flash of lightning struck the line outside, entered the office, melted the brass plates, and passed, in an almost blinding explosion, within two inches of his hand, without doing him the slightest harm, or injuring the Morse Instrument, at which a signaller was seated. I was

*Diagram, Page 544.*




LITHOG. BY H. M. SMITH, SURV. GEN'L'S OFFICE, CALCUTTA, JANUARY, 1860

writing in an adjacent room at the moment. The explosion was as loud as that of a heavy gun in a casemated battery, or between the decks of a ship.

78. It is worthy of record that a second line of wire erected for experimental purposes on the same posts for about a mile from the Ootacamund office, led to an instrument of much value, used for measuring deviations of currents, leaking as it were from the main line during rain. This second line received its share of the discharge, conveyed it to the experimental instrument, in which it exploded, the instrument being entirely destroyed. I had neglected to provide it with a safety coil, and thus obtained expensive and disagreeable proof of the value of this contrivance.

## PRESENT STATE OF ESTABLISHMENT.

79. In my last annual report it is shown at page 24, paragraph 90, that the total monthly cost of the working establishments then entertained, was Rupees 63,427, and the amount of monthly working "*contingencies,*" such as house rent, battery stores, special travelling, oil, stationery, and sundries, was estimated at 17,816,=total Rupees 81,233 per month for 7,155 miles of line, and 125 offices then open and in use.*

* By an error of the printer's the lines were stated at 10,700 miles, offices 150. I may observe that I had no opportunity for correcting the proofs, and that many errors have accordingly occurred in that report.

80. Since last report the lines from Kurrachee to Lahore, and Hyderabad in the Deccan to Mirzapore, also those from Pondicherry to Ceylon, Calicut to Cochin, and Poona to Amednugger, have been completed, and the offices named in paragraph 5 opened for correspondence; in all, about 3,000 miles of line, and 28 offices. The "construction" establishments employed, and yet retained on those lines, still constitute a very heavy item of expense not properly falling under the head of "*working*" establishment; nevertheless, construction and working included, the cost of the whole establishments now entertained, and of all office contingencies, amounts to Rupees 85,819, of which the annexed abstract shows the heads of expenditure:

| | | | | | |
|---|---|---|---|---|---|
| 11 | Deputy Superintendents ... | ... | ... | Rs. | 4,100 |
| 1 | Assistant Deputy Superintendent | ... | ... | „ | 350 |
| 18 | 1st Class Inspectors ... | ... | @ 250 | „ | 4,500 |
| 28 | 2nd Class Ditto ... | ... | @ 150 | „ | 4,200 |
| 87 | 3rd Class Ditto ... | ... | @ 100 | „ | 3,700 |
| 125 | Assistants in charge of offices | ... | ... | „ | 11,532 |
| 336 | Expert Signallers* ... | ... | ... | „ | 15,609 |
| 103 | Probationers ... ... | ... | ... | „ | 2,782 |
| 113 | European artificers† ... | ... | ... | „ | 6,812 |
| 22 | Native Ditto ... ... | ... | ... | „ | 770 |
| 1,027 | Line and Cable guards ... | ... | ... | „ | 7,099 |
| 859 | Servants and Peons ... | ... | ... | „ | 5,053 |
| 175 | Accountants and Clerks ... | ... | ... | „ | 5,383 |
| | Carried over ... | ... | ... | | 71,890 |

* Average salary 46 Rupees each.

† Average allowance 61 Rupees.

| | | |
|---|---|---|
| Brought forward ... ... ... | Rs. | 71,890 |
| Auditor, Printer, Assistant Teachers, Bombay and Coonoor, and Sundries ... ... ... | „ | 750 |
| House rent ... ... ... ... | „ | 3,679 |
| General superintendence ... ... ... | „ | 3,000 |
| Work-shops, Calcutta and Bangalore ... ... | „ | 1,500 |
| Office sundries, oil, stationery, sulphate of copper, zinc plates, estimated at ... ... ... | „ | 5,000 |
| Total for all India ... ... ... | Rs. | 85,819 |

81. Now, taking Rupees 35,000 per mensem as average cash receipts for private messages during the current year, and 5,000 Rupees as the minimum cash receipts for service messages, total 40,000 Rupees, there will be an excess of expenditure of Rupees 45,819 Rupees monthly.

82. There are two sources from which the excess of expenditure may be much reduced within a reasonable time.

## MEANS OF REDUCING EXCESS OF EXPENDITURE.

83. The business of the lines and offices will assuredly increase very largely from the commencement of next fine season, under the influence of the restoration of public tranquillity, the revival of commerce, the daily improvement in the speed and accuracy of work, the confidence of the public in the secrecy observed in every office, and under the encouragement afforded by the extraordinary cheapness of our rates.

84. Again, for every section of line brought into a thoroughly permanent state by the erection of Iron, granite, or iron-wood supports, numerous Inspectors, Artificers, line guards, and other temporary establishments, may be discharged. I am certain that a diminution of Rupees 20,000 per month can be accomplished by these reductions, without impairing the efficiency of offices or lines. This can be effected within two years at furthest, should the measures which I shall submit for this purpose receive the approval of Government. By that time, and by the measures referred to, I have full confidence that our lines and offices will pay their entire charges, except the wear and tear of the lines, where wooden standards are used.

## GREAT VALUE OF IRON POSTS.

85. On this subject I have to observe that the reports I have received from the Deputy Superintendents, respecting the supports, show that the Iron posts used in Scinde, on the East Coast, and in Bengal, are thoroughly successful in every point of view. The same is reported of the granite slabs in Mysore. Masonry pillars are universally condemned. Those erected at an enormous cost in Central India and in Bengal during my absence in Europe are now, in about three years, falling to pieces by scores. The incessant vibration of the wire, independent of any lateral strain, disintegrates the cement, and rain and wind complete the ruin. All this was pointed out in the report I submitted

before I left India, but my opinions were perhaps overlooked, and the result is, that we are now daily compelled to put up common wooden posts to replace the masonry pillars falling down between Secunderabad and Nagpore, and Burdwan and Patna.

86. Of wooden posts there are but two kinds which should ever be employed, the red iron-wood of Arracan, and the grey iron-wood of Ceylon *(Mesua Ferrea)*; of the former the supply is limited. The *Mesua* is procurable in large quantities at Jaffna.

## VALUABLE SERVICES OF PARTICULAR OFFICERS DURING THE YEAR.

87. I have now the gratification of reporting to the Government of India, the names of the officers of this Department who have distinguished themselves during the year by any special service.

88. In my report dated the 31st of October, I described the remarkable services rendered by Mr. Todhunter in the re-construction of the line from Agra to Indore, and the very successful feat accomplished by Mr. Wickham in placing the Telegraph cable across the Gulf of Manaar, without steam, and with the aid of only a native crew.

89. Mr. Bailey has not only completed the lines in Ceylon, but altered, strengthened, and secured those from Paumben to Negapatam. He manages his lines and offices with remarkable ability and perfect success. He is now very ably seconded by Mr. Moberly, who is employed in establishing the Morse Instruments and system in all the Offices in Ceylon.

90. Mr. Smith, Officiating Deputy Superintendent in Scinde, has completed the lines from Hyderabad to Lahore with a degree of energy and skill which has never been surpassed in this Department.

91. Mr. Mayes has reconstructed and strengthened the line from Madras to Balasore, and is entitled to my cordial acknowledgment for his indefatigable exertions. The 1st Class Inspectors on that line, Mr. Bence and Mr. Cappel, also deserve great praise for the manner in which they have performed all the duties I entrusted to them.

92. Mr. Nowill, Officiating Deputy Superintendent in Central India, and Baboo Seebchunder Nundy, have completed the line from Hyderabad to Mirzapore with considerable speed, and deserve creditable mention.

93. Mr. O'Donnell, Deputy Superintendent in Bengal, and Mr. F. G. Teale, Officiating 1st Class Inspector, have succeeded in restoring the lines and offices from Agra to Allahabad, to a state of fair efficiency from the total disorganization and confusion into which they had fallen at the commencement of this year. Mr. O'Donnell reports that Mr. McGregor, the Assistant in charge of the Calcutta Office, is remarkable for the assiduity and intelligence with which he manages the chief office in India.

94. Mr. Owen, Officiating Deputy Superintendent in Bombay, deserves great praise for the efficient manner in which he has managed his circle and offices, which are now the

most actively employed and most remunerative in India. He is ably seconded by Mr. H. J. Walton, the Inspector in charge at Bombay, whose assiduity, skill, and vigilance in the discharge of all his duties afford a good example to the whole department. I have also to mention with cordial approbation the services rendered by Mr. M. K. Man, in securing the stability of the lines in Guzerat under circumstances of much difficulty and urgency. Mr. St. Albin has also rendered excellent service in this circle by the skill and success with which he has established the Morse system and instruments in all the stations from Surat to Deesa inclusive.

95. In Madras, Mr. Blissett gives great satisfaction, and I am happy to bear testimony to the excellent working of his whole circle. He reports in terms of great approbation on the good service rendered by Mr. Sabine in the perfectly successful introduction of the Morse system and instruments, and training of the Signallers in the offices of Mercara, Cannanore, Calicut, and Cochin, a duty he had previously performed with equal success in the offices at Sattara, Dharwar, and Gudduck in the Bombay Presidency. Mr. Sabine has thus the merit of having established a greater number of Morse offices than any other of the assistants sent for this purpose to India.

96. In the North-Western Provinces much credit is due to Mr. Harrington Officiating Deputy Superintendent, Mr. Browne, Assistant Deputy Superintendent, Mr. Naylor, and Mr. Walton for the great rapidity with which they have constructed flying lines from Umballa to Simla, and Rawul Pindee to Murree.

97. I have lastly to express my acknowledgments to Mr. Galbraith, the Auditor of Accounts, for the skill and close application with which he manages his Department, and the labor he has bestowed on the Polymetrical Table which accompanies this Report.

98. I have only to add that the new lines sanctioned between Dacca and Akyab, Benares and Patna, Burdwan and Patna, and the branch lines on the East Coast, are all in good progress, and will doubtless be completed and rendered available for public use before the end of this Official year.*

*Line from Bezwarrah to Coconada finished and office opened. Line from Dowleishwaram to Masulipatam also finished this day, 1st August 1859.

I have the honor to be,
Sir,
Your most obedient servant,

(Signed) W. B. O'SHAUGHNESSY,
*Supdt. Elec. Tels. in India.*

BANGALORE,
*The 24th July* 1859.

# APPENDICES

TO THE

# ELECTRIC TELEGRAPH REPORT,

FOR 1858-59.

# APPENDIX NO. I

*List of Electric Telegraph Stations arranged according to their Geographical situation.*

BENGAL.

Calcutta
Atcheepore
Hooghly Point
Diamond Harbour
Mud Point
Saugor Island
Kookroohattee
Kedgeree
(Stations on Hooghly River.)

Midnapore

Barrackpore
Burdwan
Raneegunge
Burhee
Sherghotty
Sasseram
Benares

Rajmahal
Monghyr
Bhagulpore
Patna or Dinapore

DACCA CIRCLE.

Jessore
Dacca

NORTH-WESTERN PROVINCES AND PUNJAB.

Allahabad
Cawnpore
Calpee
Futtyghur
Shahjehanpore
Agra
Allyghur
Delhi
Umballa
Simla
Kussowlee
Loodiana
Philloor
Jullunder
Umritsur
Lahore
Mooltan
Rawul Pindee
Murree
Attock
Peshawur

Meerut
Moradabad
Bareilly

Lucknow
Gonda
Fyzabad

BOMBAY.

Bombay
Parell
Malabar Point
Matheran
Dapooree
(Offices for the use of the Governor, open alternately.)
Tanna
Wasind
Nassick
Malligaum
Dhoolia

Bulsar
Surat
Baroda
Baroach
Kaira
Ahmedabad
Deesa

Poona

Seroor
Ahmednuggur

Sattara
Mahabaleshwar*
Kolapore
Belgaum

Sawunt Warree
Vingorla
Goa

* Open during season only.

Dharwar
Gudduck

INDORE.

Seerpore
Ackberpore
Mhow
Indore
Beowra
Seepree
Gwalior

MADRAS.

Madras
Guindy*
Mount
Pondicherry
Negapatam
Pootoocottah
Paumben

Poona Mallee
Vellore
Bangalore

Mysore
Ootacamund

Mercara
Cannanore
Calicut
Cochin

Seerah
Bellary

CENTRAL INDIA.

Kurnool
Hydrabad
Secunderabad
Wurrungul
Chanda
Chinnoor
Nagpore
Kamptee
Seonee
Jubbulpore

* Open only during residence of the Governor.

Rewa
Mirzapore

EAST COAST.

Jelasore
Balasore
Cuttack
Berhampore
Chicacole
Chutterpore
Vizagapatam
Dowleishwaram
Masulipatam
Bezwarra
Cocanada
Ongole
Nellore

SCINDE.

Kurrachee
Keamaree
Gizree
Kotree
Hyderabad
Buddeena
Nuggur Pakur
Taroosha
Sukkur
Shikarpoor
Jacobabad
Kusmore
Rajunpoor
Deera Gazee Khan

PEGU.

Rangoon
Henzada
Menghye
Shoaghyeen
Prome
Tonghoo
Thyet Myo
Pegu.

CEYLON.

Point de Galle
Colombo
Kandy
Mehintelle
Manaar.

HEAD OFFICE,
*1st August* 1859.

W. B. O'SHAUGHNESSY,
*Supdt., Elec. Tels. in India and Ceylon.*

# APPENDIX NO. II.

*Weekly Register showing the inaccuracies, delay, and omission made in the transmission of the undermentioned messages by Electric Telegraph in the Bengal Presidency, during the week ending the 8th May,* 1858.

| Examiners Office. No. | Examiners Office. Letter. | Date of Message when tendered for despatch. | Date on which the error occurred in Message. | Place from. | Sender's Name. | Place to. | To Whom. | No. of words in the body of the message. | Repeated Messages. | Stations in fault. | Signallers to blame. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | DOWN. | | |
| 66 | C. | May 2 | May 5 | Calcutta ... | Kissenloss Sookram ... | Benares ... | Buhramul Joykissen Doss | 13 | PR. | Ramegunge & Sherghotty | Faris, Ramegunge, Sealy, Sher. | Sherghotty, for "11" read "12." |
| 116 | „ | ✱ „ 4 | „ „ | Ditto ... | Rooteyram Tewary ... | Cawnpore ... | { Poyragsaraine Tewary, at Pukhapore ... } | 26 | „ | Sherghotty, Calcutta ... | Dodd, Sher., Bemonten, Cal.... | { Sherghotty, for "Rooteyram" & "Poyragsaraine" read "Gooteyram" and "Joyrammraine." |
| 46 | „ | „ 3 | „ „ | Ditto ... | Financial Secretary ... | Lahore ... | Accountant ... | 109 | SE. | Sherghotty and Benares .. | Baptist, Sher., Caston, Be. ... | Benares, for "13" read "30." |
| 221 | „ | „ 7 | „ 7 | Ditto ... | Pemahboy Hemchund { | Bombay and Indore ... } | Pemahboy Hemchund ... | 23 | PR. | Calcutta, Sherghotty ... | William, Cal., Gomes, Sher. ... | Sherghotty, for "For" read "Four." |
| 272 | „ | „ 8 | „ 6 | Ditto ... | Shersing ... | Ditto ... | Merwanjee Jungerjee ... | 13 | „ | Sherghotty and Benares .. | Hourigan, Sher., Caston, Be.... | Benares, for "20" read "30." |
| | | | | | | | | | | UP. | | |
| 1862 | Sher | April 29 | April 29 | Sherghotty ... | Captain Browne ... | Calcutta ... | { Deputy Qr. Mr. Genl. of the Army ... } | 23 | SE. | Sherghotty and Burhee ... | Gomes, Sher., Pinto, Burhee.... | Burhee, for "6 a. m." read "2 p. m." |
| 104 | Be. | May 4 | May 8 | Benares ... | Brkbr. Gordon, Comdg. | Calcutta ... | Secy to Govt., Mily. Dept. | 33 | „ | Benares and Sherghotty .. | Draper, Benares, Doris, Sher. | Sherghotty, for "65" read "68." |
| | | | | | | | | | | Burhee and Calcutta ... | Pinto, Burhee, Tinson, Cal. .... | Calcutta, for "10" read "20." |

DOWN.

Total of Messages transmitted ... 160 .....words 3,644 } Proportion of erroneous words, ·0016.
Do. of Messages containing mistakes ... 5 .....erroneous words 6 }

UP.

Total of Messages transmitted ... 127 .....words 4,293 } Proportion of erroneous words, ·0013.
Do. of Messages containing mistakes ... 3 .....erroneous words 6 }

CALCUTTA,
E. T. Dept. Supt.'s Office,
*The 2nd June,* 1858.

GEO. O'DONNELL,
*Deputy Supdt., Electric Telegraphs, Bengal.*

# INDIAN ELECTRIC TELEGRAPH.

## A POLYMETRICAL TABLE

**Shewing the number of Rates chargeable for Messages according to Geographical distances of 400 miles.**

### MODE OF USING THE TABLE.

THE TABLE is used as in the following examples :—

How many rates from Lucknow to Madras, or Madras to Lucknow ? In the upright column, of names find Madras :—then run the finger along to the right till in cross under Lucknow, where figure 3 is found.

Again : How many rates from Calcutta to Galle, or Galle to Calcutta? In the upright column of names find Galle, and run the finger along to the right till in cross under Calcutta, where figure 4 is found.

*Method of calculating the price of a Message.*

First reckon with reference to the number of words only :—

For every 10 words, 3 rupees ; and for every word over sixteen, 1 anna ; the names of both Addresser and Addressee are charged for, each reckons as One and Of, being reckoned part of the name ; in the calculation the words *from*, *to*, *At*, *Bank*, *Limited*, and the like, are free, provided the sole remnant of no more than 2 words—*Alfred Hodgkinson Accountant* are charged for, thus, 4 — Limit Ordered Words, Commencing With Alpha," the words in italics must be paid for.

Having thus found the charge as a single rate, multiply by the number of rates for distance.

*Example* : What is the charge for a message of 20 words, from Madras to Vizagapatam ? No. of Rates, 3.

*Ex words* 3x 3 7 ; and three times this for distance—Rs. 7-9.

On the main lines no message, however short, is sent for less than one Rupee.

Where short lead lines exist, under 150 miles in length, and not forming part of the main trunk system, 10 words are transmitted for 8 annas, and 2 pice for each word over 10.

All messages for dispatch should be addressed to the " Assistant in charge" of the dispatching Office, and sent to the Superintendent of Signals, Presidency.

All complaints respecting messages should be addressed to the Deputy Superintendents of respective Circles, or to the Chief Superintendent, if the Message should have traversed more than one Circle.

The charge is declined for all messages tendered for transmission unsent and secret.

### CLASSIFIED LIST OF TELEGRAPH STATIONS.

**SPECIAL.**

Calcutta
Anchuparra
Hooghly Point
Diamond Harbour
Mud Point
Sangor Island
Kedgeharbour
Kedgeree
Mooingpore
Sarrackpore
Barrackpore
Serampoor
Barbee
Mongheer *
Bauglee
Bagulpur
Monghyr
Bhaugulpore
Patna or Dianapore

Stations on Hooghly River

Lines to N. W. P.

Ganges River Line

**DELTA.**

Jessore
Goona

**N. W. P. AND PUNJAB.**

Allahabad
Cawnpore

... Branch to Calpee
Do. to Lucknow
Do. to Futtehpur
Do. to Oonao

Futtyghur ... Branch to Shajahanpore

Agra
Delhi

... Branch to Meerut
Do. to Moradabad
Do. to Bareilly

Umballa ... Branch to Kussowlie
Do. to Simla

Loodiana
Ferozepore
Jullundur
Umritsur
Lahore
Rawul Pindee ... Branch to Meerut
Attock
Peshawur
Mooltan

**BOMBAY.**

Bombay
Panwell
Mahaber Point
Mahaeva
Dapooree
Panee
Vassaie
Mahigaum
Surat
Surat
Dewulia
Broach
Ahmedabad
Deesa
Deesah

Branch to Sewur
Do. to Ahmedabad
Branch to Baharah wa
Branch to Sawur Warrie
Do. to Umgaria
Do. to Siwa

Line to Agra

Line to Goonsee and Ajmere

Line to Madras

Dharwar
Goolsuck †

Poonah
Sungumner
Ahmednuggur
Aurungabad
Nowsera
Malligaum
Gandsur

Line from Bombay to Agra

Madras
Madras *

... Three wire Station on the Island of Madras

**MADRAS.**

Mount
Pondicherry
Negapatam
Paleacottah
Paumben
Pambaneddy
Callaur
Bangalore
Nundy
Sellary
Mysore
Coimbatoor
Cannore
Mercara
Cannanore
Calicut
Cottah

Line to Ceylon

Line to Bombay

Line to Palghaterie and Malabar Coast

**CENTRAL OFFICE.**

Kurnool
Hyderabad
Secunderabad
Warangul
Chanda
Chicacole
Nagpore
Kamptee
Seonee
Jubbulpore
Sirra
Mungpoo

Stations of observation as soon as in operation

**EAST COAST.**

Jelasore
Balasore
Cuttack
Pooleapauee
Cossimbazar
Berhampore or Cassipore †

Vizagapatam
Doorgaharaum or Bijeenaddy
Masulipatam
Ellore
Cocanada
Degolu
Nellore
Sadrapatam
Collegapatam
Vizianagram

**STEAMER.**

Karwarrie
Kanarrore
Cheria

Harbour Stations for Kurwarrie & Cheria mouth of the Indus

Rohree
Hyderabad
Nuddeea
Nagore Parlee
Tarrooka

... 127 miles N. of the Junction Line of Jamrud Line.

Jubbee
Mahimpore
Jamdad
Kamoree

... 18 miles S. of Dhurrol in Kamoree between Sindh and Punjab.

Rajmpore

... 4 miles E. S. of Jamrud (Indus S. & N. of Mrs. Sanders on the Indus

Beera Gaeir Khan

**STEAMER.**

Bangkok
Rhodda
Hooghly
Hooghynhem
Pooree
Coghee
Tripleane
Poor

The lines to Pegu are not yet connected with them in India, and the works are in progress, and will be completed early next year

Point de Galle
Colombo
Kandy
Manaar

† Line open occasionally. ‡ Line open occasionally. The Central Station is Bombay.

### DIFFERENCE OF TIME BETWEEN THE STATIONS.

Owing to difference of longitude, there is much variety in the local time, and it is necessary to allow for the difference when telegraphing the time of a message between stations.

To facilitate this, the letters at the external left & right, the numbers being minutes of time have their Correction.

To find the difference of time between any two places, proceed as in the following example :—

What is the difference of the between Calcutta and Lahore ?

Calcutta ...
Answer—Calcutta 00
Lahore 30 ]
Difference 30

Time in Lahore is 30 minutes less than Calcutta, or 12 minutes, or 7½ that when 7 o'clock, as Calcutta, is 6 minutes past 7 at Lahore.

Similarly, if at Bombay it is 10-45, what is it at Calcutta ?

Calcutta 56 ]
Bombay 10 ]
Difference 46

Then in Calcutta is 45 minutes more, or three, nearly 11-15.

Similarly, between Kurrachee and Shergolpore, the most Western and the most Eastern Stations, there is a difference of 113 m ; since 4 & 11 by the right at Kurrachee it is 1 m to 7 in the morning of the next date in Shergolpore.

Prepared by Charles Hutchinson under the direction of
W. S. CHAMPERNOWNE,
Supdt. Elec. Tele. in Bengal and Orissa.

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# ANNUAL REPORT

ON THE

# ELECTRIC TELEGRAPH DEPARTMENT,

FOR THE YEAR 1859-60.

# ANNUAL REPORT

OF THE

# ELECTRIC TELEGRAPH DEPARTMENT,

FOR THE YEAR 1859-60.

No. 303.

To

WILLIAM GREY, ESQUIRE,

*Secretary to the Government of India,*

CALCUTTA.

SIR,

I HAVE the honor to submit my Annual Report for the year commencing the 1st May 1859, and ending 30th April 1860.

## NEW LINES CONSTRUCTED.

I.—From Benares to Patna *viâ* Buxar and Arrah. This line joins that from Patna to Burdwan by Rajmahal, and thus affords a second line between Benares and Calcutta.

II.—From Raneegunge to Bancoora, and Midnapore, giving an alternative line from Calcutta to the East Coast and Madras, avoiding the very precarious river crossing at Diamond Harbour (where our cables are incessantly destroyed by ships' anchors,) and the unhealthy station and neighborhood of Kedgeree.

III.—From Dacca to Chittagong and Cox's Bazaar, in extension of the line to join those in Pegu, with which it will be connected on the arrival of 100 miles of cable now on the way from England.

IV.—Branch lines from the East Coast main line to Vizianagram, Coconada, Masulipatam, and Calingapatam, and from Mooltan to Deera Ismael Khan, in the Punjaub.

2. Lines are in progress from Chittagong to Prome, from Paumben to Tuticorin, from Shajehanpore to Bareilly, and Mooradabad to Nynee Tal.

3. In all there are now 10,994 miles and 136 offices open for public correspondence; several offices have been closed during the year as no longer necessary for military or political purposes. The line from Cawnpore to Culpee has been taken down for the same reason.

4. Great progress has been made in the erection of iron posts and other durable supports all over India.

5. A second wire has been put upon the posts from Jelasore to Balasore, on the East Coast; and a second wire is in course of suspension between Allahabad and Benares.

6. In anticipation of the successful placing of the sub-marine cable from Kurrachee to Aden, every exertion has been made to render the line from Kurrachee to Bombay safe and efficient. From Kurrachee to Deesa three-fourths of the line have been placed on Hamilton's iron posts. Several of our best inspectors have been sent to Scinde and Guzeerat. Morse instruments, and an adequate number of well-trained signallers have been provided for every station, and mounted patrols stationed all along the line. A few interruptions have, nevertheless, occurred between Nuggur Pakur and Budeena, arising chiefly from neglect on the part of the line inspectors; but these interruptions are insignificant, compared with those which have occurred in the sub-marine cables which were assumed to be exempt from all liabilities of this kind. The section of the sub-marine line between Suaken and Aden has been interrupted from the 10th of February to this day, the 10th of May, and the whole of the Red Sea line from Suez to Aden has thus been rendered useless.

7. The Hamilton iron posts, of which 40,000 have now been erected, give the utmost satisfaction; and large additional supplies are called for by all our inspectors —the posts require several modifications. The stone-ware insulators provided with them have all proved weak and brittle, and their breakage has caused many interruptions; cross pieces are also required on these posts to prevent the line wire from falling into contact with the iron, and thus establishing an earth connection, and stopping the transmission of signals.

## DECAY OF THE TIMBER POSTS.

8. This was dwelt upon in my last Report, and has since been the subject of several official letters. It is beyond doubt that the mean duration of the whole of our timber supports is but five years, and that the decay and destruction of the posts, with the expense of the establishments required to preserve and re-place them, costs the department at least 40,000 Rupees per month. Measures are now in progress for the supply of iron standards for all India. From experiments made on the mountain lines, on very long spans of wire, it is proposed to use very lofty iron masts in the plains, erected at long intervals: numerous advantages will be gained by this plan, especially as regard great facility for the insulation and erection of multiple lines, and immunity from most of the ordinary causes of interruption.

## MULTIPLE LINES.

9. In some localities it is a matter of absolute necessity to have two or more wires on the same standards—a glance at the map will show several instances of this kind. From numerous and careful experiments made during the last rains, it has been ascertained that *electrical insulation* is of very small necessity or importance, even when many lines are on the same posts. After the first shower has washed off the dust and deposits from birds and insects, the subsequent falls of rain cause little or no division of currents from wire to wire. Distilled water, as rain is chemically, is, in fact, a capital insulator of voltaic currents of low tension, such as those we use for signalling purposes. The great object with multiple wires is to prevent their actual contact with each other. We are now introducing powerful screw clamps, by which each wire is grasped tightly at every post, so that slipping off is prevented. The double line from Calcutta to Raneegunge, Benares to Allahabad, and Jelasore to Balasore, are all being provided with these clamps; and all other lines will be supplied when clamps arrive from England next season.

10. The lines generally all over India have worked well during the past year, except those within 200 miles of Calcutta in all directions. This subject has been dwelt on in my last Report, and I then ascribed the failure of the section to sheer neglect on the part of the officers in local charge. On careful official investigation this opinion has been fully verified. Nearly the whole establishment has been removed to less important circles, or been allowed to resign, or dismissed, according to circumstances, since December last. The effect of these measures has been fully successful. The only part of the Bengal Circle still working badly is one in which a change of persons has not been practicable. As some proof of the capability of the line, I may mention that we have this season worked frequently direct from Calcutta to Bombay *viâ* Benares, Agra and Indore, distance by the line 1,600 miles; also from Kurrachee to Bangalore, distance 1,800 miles; mail messages have been sent in five minutes from Bombay to Agra, 800 miles. On ordinary working days I have commonly sent messages to Calcutta from Coonoor, in the Neilgherries, in an hour, without interfering with other work. I have had an answer from Simla to a service message from Coonoor in four and a half hours, distance to and from, 4,000 miles by the line.

11. These facts are adduced to show, not what the line ordinarily does, but what it is capable of doing, and what, on emergencies, it does daily for the public service. It seems however to be nearly forgotten in most quarters that the lines were almost totally destroyed in the North Western Provinces, and from Agra to the Nurbudda, in 1857, and the signallers murdered or dispersed; that the Madras and Bombay lines had, from want of due supervision, fallen into total disorganization; that, in fact, in January 1858, we had not more than 2,500 miles of line, and fifty offices in efficient operation. We have now 11,000 miles of lines and 150 offices* open and working well, a task accomplished in two years and four months. Besides the construction of the lines, the signalling staff had to be created from totally untrained persons.

* Including more open in the monsoon only.

All this has been done with fair success, to the infinite credit of my subordinate officers, however infinitesimally small may be my own share in the result.

## THE MORSE SYSTEM OF SIGNALLING.

12. Since my last Report this system has been extended to the South East Coast and Ceylon, the whole Central India line from Bellary to Mirzapore *viâ* Hydrabad, Nagpore, and Jubbulpore. Morse instruments and signallers have also been supplied to the stations of Umballa, Simla, Lahore, Murree, and Mooltan; and an office worked on this system has accompanied the camp of the Governor-General in His Excellency's recent progress through Upper India.

13. In nearly all the offices the signallers now receive perfectly by *ear*, and reading from the paper tape is given up. The saving effected by discontinuing the use of the tape amounts to at least 30,000 Rupees per annum, while two-fold greater accuracy is attained in our work.

14. Of the seventy-four Morse assistants from England, there were sixty-five in the Department at the date of my last Report. Since then three have returned to Europe from ill health, four have retired on the expiration of their three years' agreement, and seven have been permitted to resign, or to accept employment in other departments of the public service. There now remain fifty-two, who are employed as shown in the annexed return No. 1.

15. Ample proof is afforded by its details of the just and liberal treament experienced by every one of this class who deserved promotion and reward, and that they have had a full proportion of the prize in the department. Those who have not succeeded, have either to blame themselves, or have proved inferior to competitors on the list of the original local establishment.

16. As signalling by ear is now universally adopted in America as well as in India, successful contrivances have been introduced in both countries for the simplification of the Morse instruments. The clock work and roller mechanism for the paper tape are now discarded. For use in India I have made up a very simple and cheap instrument, which works as well as the best instruments from Berlin, at less than one-tenth of their cost. These modified instruments have, moreover, the great advantage of being dismounted, cleaned, repaired, and set up, without risk or difficulty. A complete set is made up daily in the Bangalore workshop, under the able management of Mr. Faulkner. His work is quite equal in finish and solidity to that of the best Prussian instruments.

17. *The school of signallers* opened temporarily at Coonoor has proved fully successful. It has, in eleven months, supplied fifty-eight signallers to the department, to the Bombay Circle nine, Madras twelve, Bengal twenty-seven, East Coast four, and Central India lines six, there remaining under training twenty-two, and twelve more are on the way to Coonoor.

The total expenditure on this school for the year has been—

| | | | |
|---|---|---|---|
| Pay of Teacher, Assistant Teacher, Probationers, Artificers, and two Lascars ... ... ... ... | Rs. | 9,803 | 6 3 |
| Rent ... ... ... ... ... | „ | 1,360 | 0 0 |
| Stores ... ... ... ... ... | „ | 27 | 4 0 |
| Return conveyance to Bangalore eastward, and Calicut westward ... ... ... ... | „ | 1,155 | 9 0 |
| Repairs of line to Ootacamund ... ... ... | „ | 82 | 13 6 |
| | Total, Rs. | 12,429 | 0 9 |

for sixty well trained lads, being on an average 200 Rupees for each. The young gentlemen brought from England cost the Government over 1,600 Rupees each by the time they landed in India. Mr. Knop deserves my best thanks for the valuable service he has rendered in the management of this school. He has been promoted to a second class inspectorship, on 200 Rupees per mensem, with my promise for his retaining permanent charge of the Ootacamund office when the Coonoor school is closed.

## LOCAL SCHOOLS.

18. In connection with this subject, I have to observe, that much practical difficulty is experienced in supplying India generally with signallers, drawn exclusively from the Madras presidency. The Coonoor school having accomplished the general object for which it was formed should, now I think, be retained for the supply of signallers to the southern division only: if twelve pupils are always kept in training, every future emergency can be provided for. I would recommend a similar local school to be formed at Barrackpore, limited to twelve or twenty pupils, and practising on the local line to Calcutta; and a third class at Poona, of the same number, practising on the local line to Dapooree. I most earnestly advise that the entertainment of *probationers* at any station but the three named be peremptorily forbidden. A *probationer* in a regular telegraph office is a dangerous nuisance. As soon as he learns the alphabet, he is made the fag of the advanced hands, and set to do their work, before he can read a single signal; nine-tenths of the errors and delays in the transmission of messages in former years arose from this cause.

## STAFF OF THE DEPARTMENT.

19. This has been modified and re-organised as follows, on my recommendation:—

20. Three officers of superior rank have been appointed to the immediate charge of the western, southern, and eastern *divisions* respectively. The Deputy Superintendents of *Circles* are placed under the direct control of these gentlemen, who are again subordinate to the Chief Superintendent.

21. The staff* now consists of

1 Chief Superintendent.

3 Divisional Superintendents.

*Eastern Division* . . ... Major C. Douglas.

*Western Division* ... ... Captain R. Murray.

*Southern Division* ... ... Mr. J. T. Blissett.

with charge of Madras Circle.

DEPUTY SUPERINTENDENTS OF CIRCLES.

Salaries from 400 to 500 Rs.

| | |
|---|---|
| Mr. H. P. Owen | ... *Bengal.* |
| Mr. H. Wickham | ... *Bombay.* |
| Mr. J. E. Todhunter | ... *Indore.* |
| Mr. A. Cappel | ... *East Coast.* |
| Mr. G. H. J. Smith | ... *Dacca.* |
| Mr. George O'Donnell | ... *Pegu.* |
| Mr. J. H. Nowill | ... *Central India.* |
| Mr. C. Galbraith | ... *N. W. Provinces.* |
| Mr. B. C. Bailey | ... *S. E. C. and Ceylon.* |

With five Asssistant Deputy Superintendents—Salaries 300 to 350 Rupees.

Seventeen First-class Inspectors—Salaries, 250 Rupees.

Thirty-two Second-class Inspectors—Salaries, 150 to 200 Rupees; and thirty-six Third-class Inspectors—Salary, 100 Rupees per month—The total sanctioned cost of this establishment is 21,250 Rupees per month.

22. A complete list of all persons employed in the establishment, made up to the 31st March, is appended to this Report, showing the stations, duties and salaries of all persons drawing over 10 Rupees per month.

---

* See Return No. 7.

23. An analysis of this list gives the following results:—

| | |
|---|---|
| Superintendent in India and Ceylon ... ... ... | 1 |
| Deputy Superintendent, East, West, and South Divisions ... | 3 |
| Deputy Superintendents of Circles .. ... .. | 10 |
| Assistant Deputy Superintendents ... ... ... | 5 |
| 1st Class Inspectors ... ... ... ... | 17 |
| 2nd ditto Ditto ... ... ... ... | 32 |
| 3rd ditto Ditto ... ... ... ... | 36 |
| Assistant Auditor of Accounts ... ... ... | 1 |
| Assistant, in charge of Offices, not Inspectors ... ... | 117 |
| Head Signallers ... ... ... .. ... | 22 |
| Signallers ... ... .. .. ... | 369 |
| Probationers ... ... ... ... ... | 102 |
| Sub-Inspectors ... ... ... ... ... | 2 |
| Overseers ... ... ... .. ... | 5 |
| Artificers ... ... ... ... ... | 85 |
| Assistant Ditto ... ... ... ... ... | 35 |
| Accountants, Clerks, and Writers ... ... ... | 161 |
| Mounted line Guards ... ... .. ... | 61 |
| Native Artificers, Tindals, and Lascars ... ... ... | 37 |
| Native Overseers (Jemadars.) ... ... ... ... | 9 |
| Ditto ditto (Maistries) ... ... ... ... | 21 |
| Message Examiners ... ... ... ... | 11 |
| Printers and Compositors ... ... .. ... | 13 |
| Superior workmen ... ... ... ... | 6 |

besides line and cable guards, messengers, and office servants of all kinds.

24. Great reductions will be practicable in this list as fast as iron posts are provided for the lines, when one-half our present establishment of line inspectors, artificers, and overseers, and several hundred line guards and mounted patrols may be discharged. I estimate the saving to be effected in this way at 20,000 Rupees per month.* A great number of accountants, clerks, and writers might be discharged at once, with much advantage to the public service. Half of them are worse than useless. But the difficulty of getting rid of these persons is very great. They fasten upon public departments with a tenacity inspired by the enjoyment of sinecures and the prospect of pensions. To attempt to dislodge them is followed by appeals to Government, and outcries about cruelty and persecution, so that the reformer and economist soon finds himself an object of popular execration—all this is very disagreeable, but the duty must still be performed.

25. The total cost of establishment entertained on the 30th of April for all persons drawing more than 10 Rupees per mensem, amounts to 68,810 Rupees, as shown by the accompanying list; house-rent, the Bangalore work-shop, line and cable guards, and peons included, the salaries and wages amount to 88,121 Rupees.†

* On establishment only.

† Return No. 2.

26. The total expenditure in the department for the financial year under Report is shown in the annexed abstract.*

No. 3.

*RETURN of the total Actual Expenditure in* 1859-60.

| | TOTAL. | | |
|---|---|---|---|
| Bengal to Agra ... ... ... ... ... | 4,64,400 | 6 | 7 |
| Bombay ... ... ... .. ... ... | 2,08,508 | 10 | 0 |
| Madras ... ... ... ... ... ... | 2,65,627 | 0 | 0 |
| Indore ... ... ... ... ... ... ... | 66,783 | 0 | 0 |
| South East Coast... ... ... ... ... | 33,451 | 0 | 0 |
| East Coast ... ... ... ... ... ... | 1,37,187 | 0 | 0 |
| Punjab, Rohilcund, and Oude ... ... ... | 1,66,174 | 0 | 0 |
| Central India ... ... ... ... ... | 1,15,121 | 0 | 0 |
| Scinde ... ... ... ... ... .. | 1,21,231 | 1 | 0 |
| Dacca ... ... ... ... ... ... .. | 40,767 | 0 | 0 |
| Pegu ... ... ... ... ... ... | 51,177 | 0 | 0 |
| General superintendence and audit ... ... | 50,000 | 0 | 0 |
| Total, Rs. ... | 17,20,427 | 1 | 7 |

| | | |
|---|---|---|
| Actual Expenditure ... | Rs. | 17,20,427 |
| Estimate ... | „ | 16,55,958 |
| Excess ... | Rs. | 64,469 |

Arising from construction of new lines from Tuticorin to Paumben, Raneegunge to Midnapore, Shahjehanpore to Bareilly, Moradabad to Nynee Tal, and Dehra Gazee Khan to Dehra Ismael Khan, in the Punjaub, all ordered since June 1859, and not included in the sketch.

The totals of the returns on which these results have been based have been sent to my office by telegraph, and are open to unimportant corrections. If it be borne in mind that we had not a single professional Engineer, Surveyor, or Architect in the department when the skecth estimate was submitted, and that the Deputy Superintendents at the time were all gentlemen of general education only, I think their approximation to the actual results deserving of favorable notice.

27. The sketch estimate for the year submitted to Government on the 30th June 1859, and based on the returns from the several Deputy Superintendents, amounted to Rupees 16,55,958-10-0, of which for "construction, re-construction,"† and repairs, Rupees 5,57,452-9-0, and for working, Rupees 10,48,506-1-0.

## BUSINESS TRANSACTED DURING THE YEAR.

28. The results under this head are very satisfactory. Two months before the end of the previous year we had made reductions in the tariff for messages amounting to 75 per 100 on the mass of our transactions at the time, and in order to prevent the misuse of the lines by public functionaries, cash payments for all service messages was enforced, and the right of precedence abolished, except in very special cases.

* Return No. 3.

† Not including the new lines subsequently ordered, or stores from Europe.

29. The effect has been most successful. It should be remembered that all the great lines had been in operation the previous year, and the total number of offices open actually greater in 1858-59 than in the year under report. The annexed table shows the cash returns in each year and month, for private messages, not including Ceylon, except the balance due to India on the messages between the two countries.

*Cash Returns for Private Messages.*

| 1858-59. | | | 1859-60. | | |
|---|---|---|---|---|---|
| May ... ... | Rs. | 22,359 | May ... ... | Rs. | 31,943 |
| June ... ... | „ | 18,997 | June ... ... | „ | 28,885 |
| July ... ... | „ | 15,495 | July ... ... | „ | 27,548 |
| For the 1st Quarter ... | „ | 56,851 | For the 1st Quarter ... | „ | 88,376 |
| August ... ... | „ | 17,174 | August ... ... | „ | 34,756 |
| September ... ... | „ | 16,506 | September ... ... | „ | 36,580 |
| October ... ... | „ | 18,869 | October ... ... | „ | 29,943 |
| For the 2nd Quarter ... | „ | 52,549 | For the 2nd Quarter ... | „ | 1,01,279 |
| November ... ... | „ | 24,158 | November ... ... | „ | 29,430 |
| December ... ... | „ | 25,685 | December ... ... | „ | 38,461 |
| 1859, January ... ... | „ | 29,892 | 1860, January... ... | „ | 40,078 |
| For the 3rd Quarter ... | „ | 79,735 | For the 3rd Quarter ... | „ | 1,07,969 |
| February ... ... | „ | 29,563 | February ... ... | „ | 42,873 |
| March ... ... | „ | 31,451 | March ... ... | „ | 40,960 |
| April ... ... | „ | 32,956 | April ... ... | „ | 41,534 |
| For the 4th Quarter ... | „ | 93,970 | For the 4th Quarter .. | „ | 1,25,367 |
| For the year ... ... | „ | 2,83,105 | For the year ... ... | „ | 4,23,991 |

The increase being from Rupees 2,83,105 in 1858-59, to Rupees 4,23,991 in 1859-60, being 49·76 per 100.

30. The total number of messages sent in all India, Pegu, and Ceylon, was

*Private.*

In 1858-59 ... 101,164 | In 1859-60 ... 1,70,566

showing an increase in number of 68·61 per 100, while the *service* messages* were,

*Service.*

In 1858-59 ... 56,670 | In 1859-60 ... 31,868

the desired reduction in number having been effected most satisfactorily. Again, the value of the service messages was—

| | | |
|---|---|---|
| In 1858-59 ... ... | Rupees | 3,64,739 0 0 |
| In 1859-60 ... ... | „ | 1,20,169 0 0 |

31. The number of messages sent by *native* merchants and correspondents during the two years is—

| | *Messages.* |
|---|---|
| In 1858-59 ... ... ... ... | 39,724 |
| In 1859-60 ... ... ... ... | 71,554 |

* See detailed Returns Nos. 5 and 6.

32. This increase is very important, while the European community is comparatively small, and may not be capable of affording a very large increase of business; the native bankers and merchants, and community, generally, can give as much work as the lines can ever perform.

33. The great increase in the *number* of private messages proceeding, as it does mainly from the reduction of charges, is still inadequate to account for the actual increase of receipts. The number of messages would have at most prevented any actual diminution of the sum to be realised under the former rates. The excess proceeds from the increased *length* of the messages, instead of being cramped by the omission of auxiliary verbs, conjunctions, and explanatory words, the messages are now given in much greater length. This is clearly shown by the annexed analysis of the lengths of the private messages in each year.

34. In 1858-59, of 101,157 private messages, there were

| | | |
|---|---|---|
| 55,299 | of words | 1 to 16 |
| 23,220 | ditto | 17 to 24 |
| 14,298 | ditto | 25 to 32 |
| 6,099 | ditto | 33 to 48 |
| 2,241 | ditto | 48 and over. |
| 101,157 | | |

While in 1859-60, there are, in 126,939 messages, (taken from the returns of eleven months only)

| | | |
|---|---|---|
| 53,307 | of words | 1 to 16 |
| 37,992 | ditto | 17 to 24 |
| 19,549 | ditto | 25 to 32 |
| 11,127 | ditto | 33 to 48 |
| 4,964 | ditto | 48 and over. |

35. The effect on the length of the service messages paid for in cash is the reverse of that caused on the private messages by the abatement of rates.

In 1858-59, of 56,672 messages, there were

| | | |
|---|---|---|
| 4,864 | of words | 1 to 16 |
| 7,828 | ditto | 17 to 24 |
| 10,607 | ditto | 25 to 32 |
| 16,876 | ditto | 32 to 48 |
| 16,497 | ditto | 48 and over. |

While in 1859-60, of 23,687 service messages, there were

| | | |
|---|---|---|
| 3,667 | of words | 1 to 16 |
| 4,961 | ditto | 17 to 24 |
| 5,037 | ditto | 25 to 32 |
| 5,322 | ditto | 33 to 48 |
| 4,700 | ditto | 49 and over. |

36. The suppression of the abuse of the lines by public functionaries in the transmission of the prolix messages of the previous years has, by ridding the line of an enormous amount of work, been equivalent to placing a second set of lines and offices, and a double establishment of signallers and instruments at the disposal of the general community.

37. Of the 170,566 private messages sent in 1859-60, there were from each circle as follows:—

CIRCLES.

| | |
|---|---|
| Bengal and North-Western Province to Agra .. | 39,315 |
| Bombay .. .. .. .. | 43,228 |
| Madras .. .. .. .. | 31,030 |
| Central India .. .. .. | 6,336 |
| Indore .. .. .. .. | 5,491 |
| East Coast .. .. .. .. | 9,871 |
| Ceylon and South-East Coast .. .. | 10,766 |
| Pegu .. .. .. .. | 6,513 |
| Punjab, Rohilcund, and Oude .. .. | 12,356 |
| Scinde .. .. .. .. | 5,660 |

## TELEGRAPH STAMPS.

38. To enable persons residing at places where there are no telegraph stations to send their messages pre-paid by post to the nearest telegraph office, special telegraph stamps have been supplied and distributed all over India for sale at the treasuries and stamp offices. The Post Masters and Principal Civil Officers have been supplied with copies of the telegraph map, rules, and polymetrical tables. The system is now just beginning to work. By next year I have no doubt a large addition of business will flow upon the lines from this source.

## ERRORS, DELAYS, AND COMPLAINTS.

39. Previous to May 1859, all private messages on business had to be "repeated" at half price extra. In May "repetition" was made *optional*. The repetition messages are now not one-fifth of the former number.

40. As repetition has always been considered the best security against errors, it might have been reasonably expected that, on its abolition, the proportion of errors would increase very largely.

41. In an analysis of 22,657 messages transmitted at repetition price in 1858-59, it was found that 492 messages contained errors, being a proportion of one

in forty-six messages. The 22,657 messages contained 525,617 words, of which there were 689 erroneous, being a proportion of one error in 762 words.

42. In 1859-60 I have ascertained that in 105,893 messages sent in Bengal, Bombay, Madras, the East Coast, Ceylon, Scinde, and the North-Western Provinces, 1,605 contained errors, being one message erroneous in every sixty-five. The 105,893 messages contain 2,342,812 words, of which 1,982 are erroneous, being one word erroneous in 1,182.

43. These results are far better than I expected, and show a great improvement on the work of the previous year. They have been obtained by a most careful scrutiny and comparison of the messages. In every single instance the office in which the mistake occurred, and the signaller by whom it was made, have been ascertained and registered. The registers accompany this report, and may be consulted in the general "complaint office" in Calcutta, by any one who takes an interest in these matters.

44. The errors are as usual chiefly in numbers "six for sixty," "fifteen for fifty," and the like. Names of places and persons, especially of natives, "purchase" for "purchased," "insure" for "insured," "ship" for "shipped," "about" for "above," "bales" for "sales," 90 per 100 being the confusion of similar sounds in words of different meaning, or the omission of a letter or syllable. The action of atmosphere, electricity causing the instruments to work and give articulate sounds while delivering messages, is a common cause of these errors. But in many cases they arise from haste or inattention on the part of the signallers. That instances of gross stupidity occur from time to time on the part of signallers and assistants, is undeniable. It should be remembered, however, that the process of receiving a telegraph message is one in its very nature liable to the misinterpretation of what is seen or heard. Any one who has had to correct the first proof of an article set up by an East Indian or native compositor can understand at once how great is this liability to errors when the same agency is employed to write down from the *dictation* of an instrument, or to decipher its traces and dottings on a paper tape.

The true wonder is that so few mistakes occur. The sufferer by such blunders generally appeals to the press, and cites his case as a specimen of the general working of the department. The conclusion is not just. Nothing is heard or known of the 1,182 words which have been sent correctly, while loud indignation is naturally expressed for the one error in that number.

45. I am unable to present an exact report on the number and nature of *delays* My instructions for special returns on this head have not been properly carried out by the Deputy Superintendents. In the rainy season and in the thunder storm months, many interruptions occur from natural causes, which cannot be prevented. But many gross instances of criminal neglect in the offices have been brought to my knowledge, and I much doubt if this sad drawback to our efficiency can ever be obviated, till the Chief Superintendent is invested with the power of summary dismissal of the offenders *without appeal to Government.* If his authority be increased to this extent, and if he

performs his duty regardless of anonymous libels and vituperation, he may succeed in reforming this evil, which must otherwise be a constant blot on the department.*

46. In every case of undue delay, as well as in those of serious errors or non-delivery, a refund of the sum paid for a message is at once made to a complainant, and the assistants to blame are punished as severely as the state of our establishment permits.

47. The sums refunded during the year amount to but a small per-centage on our receipts, although we encourage complaints in every way, and although incessant attempts are made to defraud the department by false or frivolous claims.† For the purpose of affording every facility for the investigation of complaints and the refund of sums fairly claimable, a separate central office was established in Calcutta, in December last, in addition to the local offices. In the central complaint office every "*through*" message‡ sent in India and Ceylon is traced and compared, *whether complained of or not.* No such attempt is made, no such trouble taken in any other part of the world.

48. A specimen of the weekly return made by the complaint office is annexed in illustration of the pains bestowed on this branch of our business.

49. Since the opening of the general complaint office to the 30th April, the following refunds have been made:—

| | | | | | |
|---|---|---|---|---|---|
| For Bengal | ... | ... | Rs. | 392 | 3 0 |
| For Bombay | ... | ... | „ | 69 | 3 0 |
| For Ceylon | ... | ... | „ | 41 | 4 0 |
| For Madras | ... | ... | „ | 4 | 10 0 |
| For Dacca | ... | ... | „ | 4 | 8 0 |
| Punjab, Rohilcund, and Oude | | ... | „ | 7 | 2 0 |
| Total number of complaints | | ... | „ | 154 | 0 0 |
| Total amount refunded | | ... | „ | 518 | 14 0 |
| Total amount refunded in Bengal Division for the *whole year* | ... | ... | „ | 1,479 | 8 0 |
| Bombay Division | ... | ... | „ | 1,255 | 9 0 |
| Madras Division | ... | ... | „ | 112 | 0 0 |
| | | Total Refunds, Rupees | | 2,847 | 1 0 |

being Rupees 0-10-8 on the total receipts of the year, *viz.* Rupees 4,23,991-0-0.

50. I have now only to advert briefly to some miscellaneous matters deserving notice in this report.

* I received this day, 17th May, by *post*, the official copy of a telegram addressed to myself by the Accountant General at Calcutta, on the 1st instant. The message never reached me by telegraph. It conveys a "*no demand*" certificate, without which I could not leave India in the steamer in which I have taken my passage. If the head of the Telegraph Department has to complain of such scandalous neglect by his own subordinates, the public must, doubtless, be still worse served. There is but one remedy for such cases, the instant dismissal of the culprits, not only from the Telegraph Department, but from the public service.

† This happens chiefly in Bombay, among the native agents, and brokers employed in the opium trade.

‡ Those passing through more than one telegraph circle.

## EFFECTS OF LIGHTNING.

51. I am happy to report again the perfect success of the arrangements for the protection of our buildings, instruments, and signallers from the effects of lightning. The teeth of the brass lightning plates and the safety coils described in my last Report, are melted in great numbers every day. But of two hundred Morse instruments now in use, only two have suffered injury during the last year. In one of these cases I have reason to believe the safety coil was not used at all. In the second case, which happened at Ootacumund, under my own observation, the *ends* of the coil had been *crossed* accidentally, so that the flash struck *across*, and did not circulate through the coil. As to the assistants and signallers, they care nothing now about the worst thunder storms, but the lazy hands make their occurrence a common pretext for stopping work altogether.

## TELEGRAPH ACT.

52. A revised Act has passed the Legislative Council to remedy certain defects found to exist in Act XXXIV. of 1854. Several of the alterations are, in the phraseology of the Act, rendered desirable by the transfer of the Government of India to the Crown. In Section XI. heavy penalties by fine and imprisonment are assigned to the wilful violation of secrecy or disclosure of the contents of despatches, except under the official order of a Secretary to Government. Section XII. imposes imprisonment and fine for offering bribes to persons in the Telegraph Department, in order to induce such persons to act in a manner inconsistent with their duty.

## WORK-SHOPS.

53. In addition to the work-shops at Bangalore and Calcutta, I would suggest that one be established at Poona for the western division. The total cost of the three work-shops' materials included should not exceed 1,500 to 2,000 Rupees per month. For this sum the new simplified Morse instruments, lightning plates, safety coils, and battery plates, should be supplied for all our stations.

## AUDIT OF ACCOUNTS.

54. As this is the last Report I shall have the opportunity of submitting to Government previous to my departure to Europe, I think it desirable to state that, since my return to India in December 1857, to the 11th instant, I have examined and audited the bills for "construction and working" as follows:—

| | | | | | |
|---|---|---|---|---|---|
| Construction .. .. .. | Rs. | 18,33,602 | 8 | 4 |
| Working .. .. .. | „ | 17,44,868 | 13 | 3 |
| Total, Rupees | | 35,78,471 | 5 | 7 |

The bills bear dates from February 1857 to March 1860. Total number of bills audited 12,554. The "construction" bills contain the expenditure for all the new lines put up and old lines repaired since January 1857, with many very heavy items in arrears for the lines previously erected. Details are given in the return annexed.*

* [illegible] Return No. I.

55. As I am about to proceed to England on medical certificate by the next steamer, I have sent the whole of the documents, on which the preceding Report is based, to Major Douglas, the officer appointed by Government to act as Superintendent during my absence, and by whom any more detailed information required by Government, or the public, will be at once supplied.

56. I venture to add a brief expression of my great satisfaction at the selection of Major Douglas as my successor. I have never met any one in India or Europe who combines in so remarkable a degree the attainments and qualities required for the office. An accomplished Electrician, Chemist, and Engineer, he has the assiduous and indefatigable application to business, and unswerving determination of purpose, without which the Superintendent of this department must fail in the discharge of his duties. I leave it in his able hands, satisfied that he will introduce every real improvement attainable, leaving unaltered whatever may be good and useful. He is most ably supported by Captain Murray in Bombay, and Mr. Blissett in Madras, and by nearly all the Deputy Superintendents of Circles, of whom Mr. Wickham, Mr. Todhunter, Mr. Galbraith, and Mr. Bailey deserve very favorable mention. A great majority of the Assistant Deputy Superintendents and of the Inpsectors of the first and second grades are well educated gentlemen, who perform their duties with complete success, and among the assistants in charge of offices there are many who cannot be excelled for their skill, assiduty, and good conduct.

57. There is a great future before the Telegraph in India. By perseverance and determination it should be made the best in the world, inasmuch as it possesses a unity of organization unattainable elsewhere, with all the resources of the Empire to promote its extension and improvement. In two or at most three years from this time, the lines should yield a clear profit, and a *uniform minimum charge for messages may then be adopted for all India.* This, with the general use of some simple cypher by habitual correspondents, will enable the Telegraph to perform much of the present business of the post office; meanwhile, we have at our disposal, at a moderate cost, an instrument of such miraculous power, that by a single message it has already saved our Indian Empire, while day by day and hour by hour it is busy in the promotion of commerce and the furtherance of private interests of every kind. In my extended tours over all parts of India, I have seldom met a family who had not some anecdote to tell of the services the Telegraph had done them. There are few Europeans in India who have not experienced a thrill of pleasure when they meet our masts and wires on the margin of every road, and know that these true tokens of science and civilization and power traverse our Indian Empire to its uttermost limits. Should I see them no more, I can truly say that I shall ever continue to take the most heartfelt interest in the prosperity and improvement of the department; and feel proud and happy that it has been my lot to bring it even to its present imperfect state.

I have the honor to be,

SIR,

Your most obedient servant,

W. B. O'SHAUGHNESSY,

*Superintendent, Electric Telegraphs in India and Ceylon.*

HEAD OFFICE NEILGHERRIES;
17*th May* 1860.

# APPENDICES

TO THE

# ELECTRIC TELEGRAPH DEPARTMENT,

FOR THE YEAR 1859-60.

## APPENDIX No. I.

*RETURN of Assistants sent from England in the Telegraph Department, for the introduction of the Morse system of signalling.*

| NAMES. | Rank. | Station. | Salary. | Office Allowances. | Total. | REMARKS. |
|---|---|---|---|---|---|---|
| Mr. J. T. Blisset ... | Dy. Superintendent in India, Southern Division ... | Madras ... | 600 | ... | ... | |
| Mr. H. P. Owen ... | Dy. Superintendent, Bengal ... | Calcutta ... | 400 | ... | .. | Recommended for 500 Rupees. |
| Mr. H. Cappel ... | Dy. Superintendent, East Coast ... | Vizagapatam ... | 400 | ... | ... | |
| Mr. C. Galbraith ... | Dy. Superintendent, North Western Provinces ... | Agra ... | 400 | ... | ... | |
| Mr. H. Man ... | Dy. Superintendent, Scinde | Kurrachee ... | 500 | ... | ... | Recommended for 400 Rupees. |
| Mr. F. G. Teale ... | Assistant Deputy Superintendent ... | Calcutta ... | 300 | ... | ... | |
| Mr. M. K. Man ... | Ditto ... | Guzerat ... | 300 | ... | ... | |
| Mr. T. R. M. Bence ... | Ditto ... | Cuttack ... | 300 | ... | ... | |
| Mr. H. T. Walton ... | Ditto ... | Benares ... | 300 | ... | ... | |
| Mr. H. E. Thompson ... | 1st Class Inspector ... | Jubbulpore ... | 250 | ... | ... | |
| Mr. W. W. Biddulph ... | Ditto ... | Calcutta ... | 250 | ... | ... | |
| Mr. J. Sabine ... | Ditto ... | Malabar ... | 250 | ... | ... | |
| Mr. R. B. Flindell ... | Ditto ... | Bengal ... | 250 | ... | ... | |
| Mr. H. V. Walton ... | Ditto ... | Lucknow ... | 250 | ... | ... | |
| Mr. H. St. Albin ... | Ditto ... | Hyderabad, Scinde... | 250 | ... | ... | |
| Mr. J. H. Lane ... | Ditto ... | Agra ... | 250 | ... | ... | |
| Mr. W. Toulmin ... | Ditto ... | Vizagapatam ... | 250 | ... | ... | |
| Mr. W. R. Brooke ... | Ditto ... | Belgaum ... | 250 | ... | ... | |
| Mr. H. B. Sleeman ... | Ditto ... | Nugger Pakur ... | 250 | ... | ... | |
| Mr. W. Eckford ... | 2nd Class Inspector ... | Dacca ... | 200 | ... | ... | |
| Mr. K. H. Jenkyns ... | Ditto ... | Scinde ... | 200 | ... | ... | |
| Mr. M. R. Truman ... | Ditto ... | Allahabad ... | 200 | ... | ... | With office Allowance. |
| Mr. J. Fitzgerald ... | Ditto ... | Futtyghur ... | 200 | ... | ... | Ditto. |
| Mr. C. B. Gordon ... | Ditto ... | Cawnpore ... | 200 | .. | ... | Ditto. |
| Mr. W. S. Stewart ... | Ditto ... | Cawnpore .. | 200 | ... | ... | |
| Mr. W. Walbran ... | Ditto ... | N. W. Provinces ... | 150 | ... | ... | Line duty. |
| Mr. M. Kealey ... | Ditto ... | Bombay ... | 150 | ... | ... | Ditto. |
| Mr. W. McGregor ... | Ditto ... | Benares ... | 150 | 50 | 200 | |
| Mr. H. Hammond ... | Ditto ... | Ditto .. | 150 | ... | ... | |
| Mr. T. Babington ... | Ditto ... | Hyderabad (Deccan) | 150 | ... | ... | |
| Mr F. Finch ... | Ditto ... | Cuttack ... | 150 | ... | ... | |
| Mr. J. S. Harris ... | Ditto ... | Burdwan ... | 150 | ... | ... | |
| Mr. C. H. Malpas ... | Ditto ... | Midnapore ... | 150 | 50 | 200 | |
| Mr. J. C. Maeguire ... | Ditto ... | Calcutta ... | 150 | 50 | 200 | |
| Mr. H. Nicholetts ... | Ditto ... | Burdwan ... | 150 | ... | ... | Line duty. |
| Mr. F. Wyman ... | Printer to Home Department and Telegraph ditto ... | Calcutta ... | 300 | ... | ... | Consolidated pay. |
| Mr. W. Bignell ... | Assistant in charge ... | Mirzapore ... | 200 | 30 | 230 | |
| Mr. W. O'Brien ... | Ditto ... | Scinde ... | 100 | 30 | 130 | |
| Mr. H. Plaskett ... | Ditto ... | Kurnool ... | 100 | 30 | 130 | |
| Mr. P. Love ... | Ditto ... | Bombay ... | 100 | 75 | 175 | |
| Mr. C. Dunn ... | Ditto ... | Tuticorin ... | 100 | 30 | 130 | |
| Mr. G. Charles ... | Ditto ... | Calcutta ... | 100 | 50 | 150 | |
| Mr. W. Cumberlege ... | Ditto .. | Meerut ... | 100 | 30 | 130 | |
| Mr. P. Dallas ... | Ditto ... | Sinda ... | 100 | 50 | 150 | |
| Mr. G. Goslin ... | Ditto ... | Nellore ... | 100 | 30 | 130 | |
| Mr. J. Hawkes ... | Ditto ... | Balasore ... | 100 | 30 | 130 | |
| Mr. R. McMullen ... | Ditto ... | Patna ... | 100 | 30 | 130 | |
| Mr. Nicholson ... | Ditto ... | East Coast ... | 100 | 30 | 130 | |
| Mr. C. J. Rowland ... | Ditto ... | N. W. Provinces ... | 100 | 30 | 130 | |
| Mr. E. C. Yeatman ... | Ditto ... | Ditto ... | 100 | 30 | 130 | |
| Mr. A. Gibson ... | Signaller only ... | Ditto ... | 100 | ... | ... | |
| Mr. F. Patten ... | Ditto ... | Ditto ... | 100 | ... | ... | |

*Casualties since 31st December 1858.*

| | | | |
|---|---|---|---|
| Mr. H. B. Harrington | .. Time of Covenant expired. | Mr. H. Disney, | Allowed to accept other employment. |
| Mr. F. D. Nelson | .. Ditto. | Mr. M. Martin, | |
| Mr. P. B. Daniell | .. Ditto. | Mr. S. Man, | |
| Mr. G. G. Danvers | .. Resigned from ill health | Mr E. Biddulph, | |
| Mr. J. E. West | .. Ditto. | Mr. C. Babington, | |
| Mr. W. R. W Brooke | .. Ditto. | Mr J. Bolleau, | |
| Mr. H. Babington | .. Ditto. | Mr H. Bristow, | |
| Mr. R. H. Haldane | .. Time of Covenant expired. | Mr A. Scott, | |

HEAD OFFICE;
*8th May* 1860.

W. B. O'SHAUGHNESSY,
*Superintendent, Electric Telegraphs in India and Ceylon.*

## APPENDIX No. II.

*TABLE showing Monthly Cost of Establishment of all persons drawing above* 10 *Rupees, and of House Rent, Line Guard, School, Workshop, &c.*

| | Miles of Line. | Number of Offices. | Rupees. | Remarks. |
|---|---|---|---|---|
| Superintendent in India and Ceylon ... | ... | ... | 3,000 | |
| Office Establishment as sanctioned ... ... | ... | ... | 625 | Includes Auditor, 6 Clerks and Complaint Office. |
| Bengal ... ... ... ... | 1,700 | 25 | 14,495 | |
| Madras ... ... ... ... | 1,038 | 15 | 10,533 | |
| East Coast ... .. ... ... | 1,027 | 12 | 5,007 | |
| Bombay ... ... ... ... | 1,499 | 18 | 8,298 | |
| Central India ... ... ... | 1,267 | 11 | 6,359 | |
| Indore ... ... ... .. | 708 | 7 | 3,258 | |
| Pegu ... ... ... ... | 404 | 8 | 3,191 | |
| North-Western Provinces or Punjaub, Rohilcund, and Oude ... ... ... ... | 1,500 | 20 | 7,621 | |
| Scinde ... ... ... ... | 766 | 10 | 4,852 | |
| Dacca ... ... ... ... | 488 | 3 | 1,394 | |
| South-East Coast ... ... ... | 290 | 2 | 1,122 | |
| Ceylon ... ... ... ... | 307 | 5 | ... | Paid by Government of Ceylon. |
| Coonoor School Monthly Cost ... ... | ... | ... | 1,035 | |
| Bangalore Workshop ... ... ... | ... | ... | 1,500 | |
| House rent same as 1858-59 ... ... | ... | ... | 3,679 | |
| Line and Cable Guards, Peons, same as 1858-59... | ... | ... | 12,152 | |
| Total ... | 10,994 | 136 | 88,121 | |

W. B. O'SHAUGHNESSY,

*Superintendent, Electric Telegraphs in India and Ceylon.*

HEAD OFFICE, NEELGHERRIES;
*The* 17*th May* 1860.

# APPENDIX No. 111.

*RETURN of Complaint Department for the month of March 1860.*

| Complaint number. | Message. From. | Message. To. | Value. Indian portion. | Value. English portion. | Cross of Complaint. | Result of Enquiry. Office to blame. Despatching. | Office to blame. Receiving. | Signaller to blame. Despatching. | Signaller to blame. Receiving. | Assistant in Charge to blame. Office. | Assistant in Charge to blame. Name. | Amount of Fines Inflicted. On Signallers. Despatching. | On Signallers. Receiving. | On Assistant in Charge. | Loss of Fines. Indian. | Loss of Fines. English. | Amount of refund. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | From. Place. | To. Person. Place. | Rs. A. P. | £. s. d. | | | | | | | | Rs. A. P. | Rs. A. P. | | | | Rs. A. P. | |
| 39 | Dyson & Co. ..... Madras | Rogby ... Cannanda ... | 1 0 0 | 0 0 0 | Error | | | | | | | 0 0 0 | 0 12 0 | Yes ... | ... | ... | 0 0 0 | Message not paid in expectation |
| 40 | Ditto ... Calcutta | Archibald Findlay ... Manchester ... | 2 0 0 | 0 0 0 | Non-transmission by Tr. | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | Complaint groundless. |
| 41 | Ditto ... Ditto | Ditto ... Ditto ... | 2 8 7 | 0 5 3 | Error | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | Refund not made because not |
| 42 | Dodsleigy ..... Bombay | Brett ... Calcutta ... | 2 8 0 | 0 0 0 | Non-delivery | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | applied for by the sender of |
| 43 | Shepherd ..... Bombay | Captain Stewart ... Bombay ... | 1 4 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | the message. |
| 44 | Cochrane & Co. ..... Calcutta | Patterson ... Calgong ... | 1 8 0 | 0 0 0 | Error | | | | | | | 0 0 0 | 0 12 0 | Yes ... | ... | ... | 0 0 0 | Refund not asked. |
| 45 | Captain Tulloh ..... Bombay | Commander Tulloh ... Bombay ... | 1 8 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 47 | Superintendent of Marine ... Madras | Mr. Clark ... Galle ... | 3 14 0 | 0 0 0 | Error | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 48 | Pannalam ..... Calcutta | Wadia ... Bombay ... | 1 8 0 | 0 0 0 | Non-delivery | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 49 | Ramchunder Sookhal ... Ditto | Moreshwey Vishwadeva ... Ditto ... | 4 12 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 12 0 | Yes ... | ... | ... | 4 12 0 | |
| 50 | Rowson ..... Burhee | Major Birch ... Calcutta ... | 1 12 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| | Fagan ..... Calcutta | A. Forbes ... Galle ... | 4 0 0 | 0 0 0 | Interception | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | Not granted, because not applied |
| 51 | Leslie ..... Ditto | Ditto ... Ditto ... | 8 0 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | for by the sender. |
| | A. Forbes ..... Galle | Arthur Mohun Byrne ... Ditto ... | 1 0 0 | 0 0 0 | Non-delivery | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | But granted because not asked |
| 52 | Ditto ..... Ditto | Lieutenant Duval ... Calcutta ... | 7 12 0 | 0 0 0 | Non-delivery | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | for by the party who paid for |
| 53 | Chesterwayte ..... Calcutta | Smith ... Bombay ... | 1 8 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | the message. |
| 54 | Kessenjee Cheilon ..... Bombay | Kessenjee Cheilon ... Karachee ... | 6 8 0 | 0 0 0 | Non-delivery | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 55 | Major Bruce ..... Commissariat | Captain Tweedie ... Calcutta ... | 1 8 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 56 | Chabert, Lindsay & Co. ... Calcutta | Govin Mohun Dass ... Cuttack ... | 1 12 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | Because not applied for by the |
| 58 | Ashangerjee ..... Bombay | Pestonjee Dass ... Calcutta ... | 1 8 0 | 0 0 0 | Ditto | | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | party who paid for the message. |
| 60 | McReddy ..... Calcutta | Ramkishnbuy Bhupell ... Bombay ... | 4 8 0 | 0 0 0 | Ditto | Receiving Clerk of the Calcutta Office, who mis-directed the message, has been fined Rs. 5 | | | | | | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 62 | Catherine Forrest ..... Ditto | Mr. Forrest ... Governor General's Camp ... | 3 0 0 | 0 0 0 | Ditto | Balasore ... Cuttack ... | Cuttack ... Vizagapatam ... | Morris ... Hoffeman ... | Hackett ... Simpson ... | Dowlah ... Cuttack ... | Dowlah ... Dowlah ... | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 63 | Commissary General ..... Ditto | Major Scillie ... Lucknow ... | 3 0 0 | 0 0 0 | Ditto | Cuttack ... Madras ... Bangalore ... | Vizagapatam ... Bangalore ... Bellary ... | Hoffeman ... J. M. ... Wells ... | Simpson ... J. M. ... Apparoo ... | Cuttack ... Bangalore ... Bellary ... | Dowlah ... Pedrotta ... Apparoo ... | 0 0 0 | 0 0 0 | Yes ... | ... | ... | 0 0 0 | Complaint groundless. |
| 64 | Hanna Shaw ..... Ditto | Ahmed Shaw Ahmed Shaw ... Umritsur ... | 9 9 0 | 0 0 0 | Interception | Calcutta ... | Berhee ... | Warehan ... | Binny ... | Berhee ... | Dunne ... | 0 12 0 | 0 12 0 | Yes ... | ... | ... | 0 0 0 | |
| 65 | Superintendent ..... Ditto | Jeejeebhoy ... Ahmedabad ... | 4 0 0 | 0 0 0 | Non-delivery | Agra ... | Delhi ... | Binny ... | Elwell ... | Delhi ... | Fraser ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 66 | David Sassoon ..... Bombay | Elias Gladney ... Calcutta ... | 11 12 0 | 0 0 0 | Ditto | Agra ... | Delhi ... | Anthony ... | Hamilton ... | Agra ... | Anthony ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 67 | Mrs. Flowden ..... Calcutta | Captain Robertson ... Nagpore ... | 4 0 0 | 0 0 0 | Ditto | Calcutta ... | Benares ... | Miller ... | Webster ... | Benares ... | Mellingar ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 68 | D. Lee ..... Colombo | J. H. Gibbs ... Gosforth ... | 41 10 0 | 0 0 0 | Ditto | | | | | Peshawur ... | Not known ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 41 10 0 | |
| 69 | Percy Lell ..... Dwarkanath Khan | Sadick Alle ... Mysoreen ... | 7 8 0 | 0 0 0 | Ditto | | | | | Peshawur ... | Pringle ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 70 | Tarrivell ..... Calcutta | Sandys ... Cannanore ... | 7 8 0 | 0 0 0 | Delay | Dwar Ganet Khan ... | Lahore ... | J. S. ... | Hopkins ... | Lahore ... | Fenn ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| | | | | | | | | | | Mithanpore ... | Malpas ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| | | | | | | | | | | Peshawur ... | Vizagapatam ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| | | | | | | | | | | Belgaum ... | Brooke ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | Refund not asked. |
| 71 | Commissary General ..... Ditto | Dy. Commissary General ... Lucknow ... | 3 0 0 | 0 0 0 | Ditto | | | | | Mithanpore ... | Malpas ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| 72 | A. Bell & Co. ..... Galle | Mackinnon, Mackenzie & Co. ... Calcutta ... | 0 0 0 | 0 0 0 | Non-delivery | | | | | Vizagapatam ... | Pedrotta ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| | | | | | | | | | | Belgaum ... | Brooke ... | 1 0 0 | 1 0 0 | Yes ... | ... | ... | 0 0 0 | |
| | | | | | | | | Complaint not investigated. Message being more than two months old. | | | | | | | | | | | |

CALCUTTA:
GENERAL COMPLAINT OFFICE,
*The 27th April 1860.*

W. D. DOUGLAS, *Major,*
*Deputy Superintendent, Electric Telegraphs in India.*

## APPENDIX No. IV.

*RETURN exhibiting the value of Construction and Working Bills audited by the Superintendent of Electric Telegraphs in India and Ceylon, from 12th December 1857 to 11th May 1860.*

| Circles. | Period for which audited. | Nature of Charge. | | Total. | Remarks. |
|---|---|---|---|---|---|
| | | Construction. | Working. | | |
| 1. Bengal ... ... ... ... | From June 1857 to October 1859 ... ... ... | 2,76,600 6 3 | 3,37,818 1 5½ | 6,16,427 7 8½ | 1. The whole expenditure for the introduction of the Morse system is included with the working account. |
| 2. Madras ... ... ... ... | „ September 1857 to February 1860 ... ... | 3,51,053 10 10 | 3,72,686 11 6 | 7,23,740 6 4 | 2. The value of stores purchased from the Great Indian Peninsular Railway Company amounting to Rupees 44,614-14-1, is charged to the Bombay Construction Account. |
| 3. Bombay, including General Sub-Division ... ... | „ February 1857 to December 1859 ... „ ... | 2,86,053 9 3 | 1,02,436 13 6 | 3,90,490 6 11 | 3. Nearly the whole cost of the construction of the Granite Slabs in the Mysore Territory, and the total cost of masonry pillars between Passumalies and Vellore are included in this statement. |
| 4. North-Western Provinces, Punjaub, Rohilcund, and Oude* ... | „ April 1857 to October 1859 ... ... ... | 1,14,065 7 9½ | 1,11,787 1 7½ | 2,25,852 9 5 | 4. The value of stores received from the Ordnance Department, together with various petty charges incurred by other departments, have been charged for a period commencing so far back as the year 1854. |
| 5. Scinde and Lower Punjaub ... ... ... | „ September 1857 to February 1860 ... ... | 1,10,206 1 10 | 1,32,380 14 4 | 2,51,285 0 2 | |
| 6. Indore* ... ... ... ... | „ September 1857 to March 1860 ... ... | 40,160 2 11½ | 78,418 9 1 | 1,18,578 12 0½ | |
| 7. Central India ... ... ... ... | „ September 1857 to January 1860 ... ... | 2,62,614 2 0½ | 62,166 6 10½ | 3,24,780 8 11 | |
| 8. East Coast ... ... ... ... | „ August 1857 to February 1860 ... ... | 3,09,823 1 2 | 1,14,548 0 7 | 4,23,470 1 9 | |
| 9. Dacca ... ... ... ... | „ February 1858 to December 1859 ... ... | 36,142 5 6½ | 9,291 2 10 | 45,433 8 4½ | |
| 10. Pegu ... ... ... ... | „ July 1857 to January 1860 ... ... ... | 21,314 0 3½ | 93,901 8 5 | 1,15,215 6 8½ | |
| 11. Ceylon ... ... ... ... | „ February 1859 to February 1860 ... ... | 7,492 10 7 | 26,436 7 9 | 33,929 2 4 | |
| General Charges. | | | | | |
| *Head Office.* | | | | | |
| On account of Travelling expenses and Contingencies ... | ..... ..... ..... | ..... | 3,178 1 4 | 3,178 1 4 | |
| Mr. Wickham on special duty, constructing Cables ... | ..... ..... ..... | 6,270 13 8 | ..... | 6,270 13 8 | Number of bills audited 12,534. |
| | Total, Company's Rupees ... | 18,33,692 4 4 | 17,44,958 13 5½ | 35,78,471 5 7½ | |

* Includes the expenditure for the re-construction of the whole of the lines destroyed during the rebellion.

Head Office;
Audit Branch, Coonoor,
*The 14th May* 1860.

W. B. O'SHAUGHNESSY,
*Superintendent, Electric Telegraphs in India and Ceylon.*

## APPENDIX No. V.

*RETURN of Cash received for Private Messages in the several Circles of Electric Telegraphs in India, from 1st May 1859 to 30th April 1860.*

| Circles. | Miles open. | Offices open. | 1859 May. | 1859 June. | 1859 July. | 1859 August. | 1859 September. | 1859 October. | 1859 November. | 1859 December. | 1860 January. | 1860 February. | 1860 March. | 1860 April. | Total. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Private. | Private. | Private. | Private. | Private. | Private. | Private. | Private. | Private. | Private. | Private. | Private. | Private. | |
| | | | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | |
| Bengal and North-Western Provinces ... | 1,780 | 33 | 6,788 8 0 | 6,818 9 0 | 7,096 8 0 | 8,932 15 0 | 7,511 2 0 | 8,206 7 0 | 8,631 6 0 | 10,011 5 5 | 12,940 11 5 | 13,931 11 6 | 15,119 1 3 | 15,155 5 3 | 1,17,164 12 1 | Up to December 1859 opium messages were sent to Bombay from Calcutta *bearing*, and the value appeared in the Bombay accounts. This caused confusion, and led to frauds; and "bearing" messages were refused from the 1st December. This explains the sudden increase of receipts. |
| Bombay ... ... ... ... | 1,439 | 19 | 11,026 4 0 | 11,551 9 0 | 9,819 9 0 | 13,794 1 0 | 12,761 6 0 | 7,084 14 0 | 7,324 11 0 | 9,599 13 3 | 10,686 9 0 | 10,629 14 0 | 10,322 2 0 | 11,261 7 0 | 1,26,787 3 0 | |
| Madras ... ... ... ... | 1,010 | 15 | 4,748 2 0 | 5,362 11 0 | 4,377 13 11 | 5,936 15 0 | 5,138 0 0 | 5,497 8 1 | 4,694 13 0 | 5,013 7 2 | 6,467 2 0 | 5,997 5 7 | 7,818 4 0 | 6,561 14 0 | 67,514 12 7 | |
| Punjaub, Bahawlpoor, and Oude ... | 1,104 | 20 | 2,705 2 0 | 1,955 2 0 | 1,566 11 0 | 1,917 0 0 | 1,566 13 0 | 1,841 7 0 | 2,094 0 2 | 2,193 2 2 | 2,068 11 6 | 2,791 7 0 | 2,833 11 0 | 2,426 0 0 | 26,366 10 0 | |
| East Coast ... ... ... ... | 1,017 | 12 | 1,068 11 0 | 898 11 0 | 1,130 10 0 | 1,666 2 10 | 1,030 11 0 | 2,009 13 0 | 1,589 0 0 | 2,081 13 0 | 1,899 10 0 | 0 0 0 | 1,143 0 0 | 4,559 2 0 | 19,044 2 4 | |
| Central India ... ... ... ... | 1,207 | 11 | 634 14 0 | 641 11 0 | 626 2 0 | 832 14 0 | 1,046 2 0 | 1,148 4 0 | 1,272 0 0 | 1,625 8 0 | 1,920 0 0 | 1,451 7 0 | 1,319 0 0 | 1,178 2 0 | 12,611 1 0 | |
| Ceylon and South-East Coast ... ... | 500 | 7 | 721 10 0 | 1,023 0 0 | 930 15 0 | 843 0 0 | 836 7 0 | 967 7 0 | 703 4 10 | 1,104 14 0 | 1,034 10 0 | 1,213 8 0 | 1,006 2 0 | 1,412 12 0 | 11,962 10 0 | The Ceylon cash returns show only the amount due to India. |
| Scinde ... ... ... ... | 795 | 10 | 894 1 0 | 1,060 0 0 | 930 1 0 | 934 15 0 | 796 4 7 | 1,024 0 0 | 894 0 0 | 994 8 0 | 862 0 0 | 1,420 10 0 | 1,002 2 0 | 1,226 1 0 | 12,199 4 7 | |
| Pegu ... ... ... ... | 464 | 6 | 1,003 0 0 | 733 1 0 | 717 10 1 | 794 0 0 | 1,038 1 0 | 951 12 0 | 761 0 0 | 901 10 0 | 1,103 9 0 | 1,271 7 0 | 1,230 0 3 | 1,226 0 2 | 11,736 4 7 | |
| Indore ... ... ... ... | 708 | 7 | 732 9 0 | 767 13 0 | 678 1 0 | 998 4 0 | 824 2 6 | 1,074 0 0 | 1,050 13 0 | 1,310 13 0 | 877 14 0 | 1,221 12 0 | 1,210 12 0 | 1,126 2 0 | 11,263 12 6 | |
| Dacca ... ... ... ... | 485 | 5 | 86 12 0 | 66 1 0 | 116 8 0 | 98 4 0 | 84 15 0 | 91 3 0 | 105 15 0 | 111 8 0 | 245 8 0 | 224 1 0 | 255 0 0 | 1,363 0 0 | | |
| Total ... | 10,887 | 150 | 31,945 1 0 | 28,903 4 0 | 27,583 9 9 | 34,736 4 7 | 30,580 15 1 | 29,961 1 4 | 29,630 7 7 | 35,857 4 5 | 40,078 4 0 | 42,872 4 9 | 43,980 1 0 | 45,629 0 9 | 4,22,200 2 1 | |

HEAD OFFICE:
*May* 1860.

W. B. O'SHAUGHNESSY,
*Superintendent, Electric Telegraphs in India and Ceylon.*

## APPENDIX No. VI.

*RETURN of Cash received for Service Messages in the several Circles of Electric Telegraphs in India, from 1st May 1859 to 30th April 1860.*

| Circles. | Miles open. | Offices open. | 1859 May. | 1859 June. | 1859 July. | 1859 August. | 1859 September. | 1859 October. | 1859 November. | 1859 December. | 1860 January. | 1860 February. | 1860 March. | 1860 April. | Total. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Service. | Service. | Service. | Service. | Service. | Service. | Service. | Service. | Service. | Service. | Service. | Service. | Service. | |
| | | | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | |
| Bengal and North-Western Provinces ... | 1,701 | 25 | 2,708 5 0 | 1,523 1 0 | 1,247 11 0 | 2,041 6 0 | 2,231 15 0 | 2,452 0 11 | 2,638 6 0 | 4,262 5 9 | 3,966 7 8 | 4,314 14 0 | 4,708 8 0 | 30,315 11 2 | |
| Bombay ... ... ... ... | 1,479 | 31 | 1,228 11 0 | 252 14 0 | 209 1 0 | 1,274 7 0 | 1,013 9 0 | 1,332 0 0 | 1,103 10 0 | 1,317 7 0 | 1,228 15 0 | 1,216 0 0 | 1,104 13 0 | 11,937 12 0 | |
| Madras ... ... ... ... | 1,053 | 15 | 937 13 0 | 983 0 0 | 1,060 1 0 | 918 15 0 | 1,279 12 0 | 1,337 13 10 | 1,203 1 0 | 1,258 7 0 | 1,040 14 0 | 1,720 3 0 | 1,027 13 2 | 1,040 11 0 | 13,726 3 0 | |
| Punjaub, Rohilcund, and Oude ... | 1,211 | 20 | 2,569 14 0 | 1,201 3 0 | 1,159 4 0 | 1,721 3 0 | 1,923 14 0 | 1,286 6 0 | 921 3 0 | 1,262 4 0 | 1,039 4 0 | 1,207 12 0 | 1,219 4 0 | 1,191 3 0 | 18,020 11 0 | |
| East Coast ... ... ... | 1,017 | 13 | 134 3 0 | 182 11 0 | 121 10 2 | 133 3 0 | 129 10 0 | 225 3 0 | 194 7 0 | 211 7 0 | 159 15 0 | 0 0 0 | 229 0 0 | 239 15 0 | 1,981 7 0 | |
| Central India ... ... ... | 1,017 | 11 | 279 14 0 | 173 7 0 | 284 8 0 | 259 0 0 | 316 0 10 | 476 13 0 | 322 1 0 | 273 13 0 | 205 3 0 | 244 4 0 | 233 10 0 | 172 6 0 | 3,435 0 0 | |
| Ceylon and South-East Coast ... | 393 | 7 | 0 0 0 | 15 15 0 | 0 0 0 | 0 0 0 | 0 0 0 | 12 10 0 | 0 7 0 | 26 12 0 | 62 5 0 | 8 12 0 | 14 13 0 | 17 5 0 | 178 0 0 | |
| Scinde ... ... ... ... | 791 | 10 | 484 7 0 | 803 0 0 | 812 12 0 | 860 13 0 | 679 3 0 | 807 1 0 | 363 10 0 | 397 14 0 | 373 6 0 | 497 14 0 | 733 15 0 | 821 1 0 | 7,725 5 0 | |
| Pegu ... ... ... ... | 401 | 8 | 1,240 1 0 | 250 0 0 | 211 13 0 | 339 8 0 | 436 10 0 | 391 2 0 | 253 3 0 | 203 3 0 | 201 9 0 | 404 12 0 | 339 3 0 | 338 3 0 | 4,591 14 0 | |
| Indore ... ... ... ... | 700 | 7 | 421 5 0 | 213 14 0 | 274 14 0 | 238 1 0 | 141 11 0 | 204 14 0 | 232 11 0 | 217 1 0 | 250 6 0 | 236 15 0 | 203 4 0 | 169 13 0 | 2,806 3 0 | |
| Burma ... ... ... ... | 400 | 2 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 2 0 | 14 1 0 | 15 6 0 | 137 9 0 | 99 10 0 | 73 14 0 | 387 14 0 | |
| Total ... | 10,997 | 136 | 10,271 10 0 | 6,640 14 0 | 6,324 6 2 | 8,073 8 10 | 8,775 14 0 | 8,525 5 1 | 7,735 2 0 | 9,954 4 9 | 17,932 11 2 | 11,995 4 8 | 11,542 7 8 | 12,108 15 0 | 1,20,168 5 0 | |

HEAD OFFICE:
*May 1860.*

W. B. O'SHAUGHNESSY,
*Superintendent, Electric Telegraphs in India and Ceylon.*

## APPENDIX No. VII.

*Present state of Staff of Officers of the Telegraph Department—1st March* 1860.

| | | *Head Quarters.* | REMARKS. |
|---|---|---|---|
| Chief Superintendent in India and Ceylon | Sir W. B. O'Shaughnessy, F. R. S. | Bangalore. | |
| Deputy Superintendent in India, Eastern Division | Major C. Douglas, B. A. | Calcutta. | |
| Deputy Superintendent, Western Division | Captain R. Murray, B. A. | Bombay. | |
| Deputy Superintendent, Southern Division | J. T. Blissett, Esquire | Madras | With immediate charge of Madras Circle also, 1st May. |

*Deputy Superintendents of Circles.*

| | | | |
|---|---|---|---|
| Bengal | Mr. H. E. Owen | | Benares. |
| Bombay | Mr. H. Wickham | | Bombay. |
| Punjaub, Rohilcund, and Oude | Mr. C. Galbraith | | Agra. |
| Indore | Mr. J. E. Todhunter | | Indore. |
| Central India | Mr. J. H. Nomill | | Hydrabad. |
| East Coast | Mr. A. Cappel | | Vizagapatam. |
| Dacca | Mr. G. H. J. Smith | | Chittagong |
| Ceylon | Mr. B. C. Baily | | Colombo. |
| Pegu | Mr. George O'Donnell | | Rangoon. |
| Scinde | Mr. H. Man | | Kurrachee. |

*Assistant Deputy Superintendents.*

| | | |
|---|---|---|
| North-Western Provinces | Mr. T. Browne. | |
| Bengal | Mr. F. G. Teale. | |
| Bombay | Mr. M. K. Man. | |
| East Coast | Mr. T. R. M. Bence. | |
| Bengal | Mr. H. G. Walton. | Officiating, 1st May 1860. |

*First Class Inspectors.*

| | | |
|---|---|---|
| Bengal | Mr. R. Flindell. | |
| Ditto | Baboo Seeb Chunder. | |
| Bombay | Mr. W. Brooke. | |
| Bombay and Scinde | Mr. H. St. Albin. | |
| Scinde | Mr. H. B. Sleeman. | |
| North-Western Provinces | Mr. H. V. Walton. | |
| Ditto | Mr. C. R. M. Naylor. | |
| Agra | Mr. J. H. Lane. | |
| East Coast | Mr. W. Toulmin | 1st May—Officiating for Mr. Darling. |
| Madras | Mr. J. H. Merritt. | |
| Ditto | Mr. J. Salime. | |
| Ditto | Mr. W. W. Biddulph. | |
| Ditto | Mr. W. C. Darling | On sick leave for 12 months. |
| Indore | Mr. J. Rushton. | |
| Ditto | Mr. W. Wallis. | |
| Ceylon and South-East Coast | Mr. G. J. Moberly. | |
| Pegu | Mr. R. Lonergon. | |
| Central India | Mr. H. Thompson | On probation. |

*2nd Class Inspectors, 1st Grade—salary* 200 *Rupees.*

| | |
|---|---|
| Bengal | Mr. N. McIntyre. |
| Bombay | Mr. H. J. Hills. |
| Dacca | Mr. W. Eckford. |
| East Coast | Mr. T. O'Shaughnessy. |
| Madras | Mr. J. M. Straughan. |
| Ditto | Mr. J. O. Knap. |
| North-Western Provinces | Mr. R. D. G. Nayler. |
| Ditto | Mr. C. B. Gordon. |
| Ditto | Mr. W. S. Stewart. |
| Ditto | Mr. M. R. Truman. |
| Ditto | Mr. J. Fitzgerald. |
| Ditto | Mr. K. H. Jenkyns. |

## APPENDIX No. VII.—*(Concluded.)*

*2nd Class Inspectors, 2nd Grade—salary* 150 *Rupees.*

| | | |
|---|---|---|
| Bengal | Mr. J. S. Harris. | |
| Ditto | Mr. J. Nicholetts. | |
| Ditto | Mr. S. Porter. | |
| Ditto | Mr. H. Hammond. | |
| Ditto | Mr. A. Swaine. | |
| Ditto | Mr. F. Biolablotsky. | |
| Ditto | Mr. C. H. Malpas. | |
| Ditto | Mr. W. McGregor. | |
| Ditto | Mr. J. C. McGuire. | |
| Bombay | Mr. M. Kealey. | |
| Madras | Mr. R. W. Linton. | |
| Ditto | Mr. T. J. Blissett. | |
| Central India | Mr. T. Babington. | |
| Ditto | Mr. R. W. Parsons. | |
| Indore | Mr. J. R. Allen. | |
| East Coast | Mr. W. Evens. | |
| Ditto | Mr. R. B. Ffinch. | |
| Ditto | Mr. G. Ritchardson. | |
| Dacca | Mr. W. Sanders. | |
| North-Western Provinces | Mr. W. Walbran | Replaced, prior to leaving after 6 months' notice. |

*3rd Class Inspectors—salary* 100 *Rupees.*

| | |
|---|---|
| Bengal | Mr. W. Mackey. |
| Ditto | Mr. C. Lafoy. |
| Ditto | Mr. J. W. Grinnol. |
| Ditto | Mr. C. R. Fentum. |
| North-Western Provinces | Mr. C. Myers. |
| Ditto | Mr. W. Rees. |
| Ditto | Mr. L. V. Fraser. |
| Ditto | Mr. J. Cairns. |
| Bombay | Mr. A. Mackenzie. |
| Ditto | Mr. W. Berkley. |
| Ditto | Mr. T. DeLastic. |
| Ditto | Mr. Yussuf Alli. |
| Ditto | Mr. W. Dracup. |
| Ditto | Mr. Miller. |
| Ditto | Mr. C. H. Dewey. |
| Madras | Mr. W. P. Fuller. |
| Ditto | Mr. T. Priddle. |
| Ditto | Mr. A. Alnares. |
| Ditto | Mr. E. Broniff. |
| Ditto | Mr. J. White. |
| Ditto | Mr. E. Faulkner. |
| South-East Coast | Mr. W. E. Seppings. |
| Central India | Mr. C. VanIngen. |
| Ditto | Mr. F. VanIngen. |
| Ditto | Mr. A. E. Kemp. |
| Ditto | Mr. J. Peters. |
| Indore | Mr. J. Galloway. |
| East Coast | Mr. R. H. Long. |
| Scinde | Mr. G. H. Phillips. |
| Ditto | Mr. G. Blackwell. |
| Ditto | Mr. H. Maher. |
| Ditto | Mr. J. C. Westaway. |
| Ditto | Mr. C. H. Johnston. |
| Ditto | Mr. Cowasjee Nussurwanjee. |
| Ditto | Mr. Lynch. |
| Dacca | Mr. W. H. Brown. |

W. B. O'SHAUGHNESSY,

*Superintendent, Electric Telegraphs in India and Ceylon.*

HEAD OFFICE,
*The 27th May* 1860.

# ANNUAL REPORT

ON THE

# ADMINISTRATION OF THE ELECTRIC TELEGRAPH,

FOR THE YEAR 1860-61.

# REPORT

OF

# THE TELEGRAPH DEPARTMENT,

## For the Year 1860-61.

THE subject matter of this Report has, for facility of reference, been distributed under the following general heads:—

1. General History.
2. Lines.
3. Signal Offices.
4. Messages.
5. Instruments.
6. Stores and Workshops.
7. Establishments.
8. Finance.
9. General Management.

## GENERAL HISTORY.

THE General History of the Department during the past year is as follows:—

On the 13th of June 1860 Sir William O'Shaughnessy left India on fifteen months' leave of absence to Europe for the benefit of his health, and the direction of the Department, during his absence, was placed in my hands.

2. On the 1st of May the number of Divisional Superintendents was increased from one to three. Captain Murray of the Bengal Artillery and Mr. J. T. Blissett being appointed as Superintendents of the Western and Southern Divisions respectively, and the following allotment of Circles to Divisions was made:—

*To the Eastern Division.*—The Bengal, Punjab, Dacca, and Pegu Circles.

*To the Western Division.*—The Bombay, Scinde and Indore Circles.

*To the Southern Division.*—The Madras, East Coast, Central India, and South-East Coast Circles.

3. On the 17th of July 1860 the designation of the Head of the Department and of the Officers holding charge of the three Divisions was changed, the former to that of Director General, the latter to that of Superintendent of Division.

4. On the 15th August 1860 the Training School at Coonoor in the Neilgherry Hills was closed; and on the 1st October 1860, 17th and 21st January 1861, four Training Schools were opened at Meerut, Bombay, Barrackpore and Madras respectively.

5. On the 28th May 1861 a special allowance to all persons, not natives of the country, employed by the Department on the continent of the Province of Pegu was granted in view to placing them in a position of less disadvantage than that of persons of the same Departmental rank employed in India proper.

6. During the year the following additions were made to the Office of the Director General:—

On the 14th June 1860 an establishment for tracing delays and errrors in messages *not complained of by the public*, as well as for checking Departmental irregularities in the treatment of Messages, violation of Circular Orders, &c.

On the 1st of January 1861 an establishment for the examination of Service Messages in view to check the misuse of the Telegraph by Public Officers.

On the 1st of March last an establishment for checking the cash collections of the Department.

7. The connection of India with Pegu was also completed this year by a Sub-marine Cable between Akyab and Kyouk-Phyoo, the laying of which was completed on the 2nd February 1861; and by two subsidiary Cables, the one across the Harbour of Akyab and the other across the Straits which separate Ramree Island from the main land of the Province of Arracan, the laying of which was completed on the 17th of April 1861.

8. On the 1st of January the following alterations were made in the limits of Circles in view to fix upon a single Deputy Superintendent the responsibility of the working of main lines joining important points:—

1*st*.—The removal of the boundary between the East Coast and Bengal Circles from Cuttack to Kedgeree and Midnapore.

2*nd*.—The removal of the boundary between the Central India and Bengal Circles from Seonee to Benares.

3*rd*.—The transfer of the Offices of Lucknow and Fyzabad and the lines connecting these with Cawnpore and Fyzabad, from the Punjab to the Bengal Circle. The effect of these changes was to increase the length of the lines in the East Coast Circle from 838 to 1,153 miles, and of those of the Central India Circle from 905 to 1,275 miles, and to diminish those of the Punjab Circle from 1,575 to 1,443 miles, and those of the Bengal Circle from 2,302 to 1,749 miles, thereby moderating the great differences which had previously existed in the extent of the Circles in question.

9. On the 31st of December 1860, and on the 15th of January 1861, two successful attempts at fraud were made in Western India near Poonah. The correspondence before the Government gives the details. The investigation proved that at the time the first of the two frauds was committed, Pectall, one of the persons concerned, was a Signaller belonging to the Department, and then absent without leave; but that on the second occasion the Department was blameless of any participation in the fraud, none of the persons concerned in its perpetration having at the time been connected with the Department, although one of them, Pectall, had, in the interval between the commission of the first and second frauds, been dismissed. The other, a lad named Allen, had ceased to belong to the Department in 1857. Both were brought to trial in the Supreme Court of Bombay for the second of these frauds, and were sentenced to eighteen months' imprisonment with hard labor. Owing to evidence of a nature likely to ensure the conviction of the instigators not being forthcoming, it was not considered desirable to prosecute them, but little doubt seems to have been entertained as to who they were.

## LINES.

### CONSTRUCTION OF NEW LINES.

10. The extent of ground traversed by such of the lines of the Department as were open to the public at the beginning of the year was 10,436 miles, of which 10,137 miles had a single wire, 225 miles had two wires, 29 miles three wires, and 45 miles four wires, giving an aggregate of 10,854 miles of line wire.

11. The following new lines have been since constructed, all with single wires:—

| | | |
|---|---|---|
| From Cox's Bazar to Prome | ... ... | 376 miles. |
| „ Paumben to Tuticorin | ... ... | 98 „ |
| „ Shajehanpore to Bareilly | ... ... | 55 „ |
| „ Moradabad to Nynee Tal | ... ... | 65 „ |
| | Total ... | 594 miles. |

The aggregate mileage of line wire was, therefore, at the close of the official year 11,448 miles.

12. The line from Cox's Bazar in the Dacca Circle to Prome in the Pegu Circle, which completes the communication between India and Pegu, is overland as far as Akyab, where a Cable of five miles in length crosses the Akyab Harbour to Wallekeon Point on the Northern extremity of the middle Borongo Island. Hence a land line extends Southward to a point on the Eastern shore of the Island distant nine miles, whence it is continued to Kyouk-Phyoo on the Island of Ramree by a sea Cable of 64 miles in length.

13. The Island of Ramree is traversed by an over-ground line of 56 miles in length to a point on its South-eastern extremity opposite Padeng, a village on the main land of Arracan, with which communication is effected by a sea Cable of four miles in

length. From Padeng an over-ground line skirts the Arracan Coast for a distance of about nine miles in a southerly direction, whence it runs inland to the Town of Prome, a distance of 79 miles, crossing the Arracan mountains in its route.

14. The main Cable, *viz.* that between the Western Borongo and Ramree Islands, which was laid under my own superintendence, as well as the portion connecting Ramree Island with the Arracan Coast at Padeng, have uniformly worked well and without interruption of any kind; but the short Cable across the Akyab Harbour has been a constant source of interruption to communication owing to injuries received from ships' anchors. The point of crossing was selected by myself in communication with the local Authorities, and passing as it did above the limits of the port, gave no grounds for apprehending any injury from the cause mentioned; unfortunately the laying was not successfully performed, as the vessels employed were allowed to drift, and the Cable was brought in part within the limits of the anchorage.*

15. As respects the main Cable between the middle Borongo and Kyouk-Phyoo, as a portion of the lighter part, viz. that to the South-west of Combermere Bay, lies athwart a tideway, I can scarcely expect the wire armour, which is very slight, to remain long in a sufficiently sound state to admit of the Cable being lifted or under-run for repair in case of accidents from ships' anchors or from friction against rocks; and considering the great risks to which the numerous Cables which have been laid by the Department across rivers and estuaries are liable,† it seems desirable to be provided with the means for manufacturing in India such short lengths of Cable as may be needed to repair casualties.

16. In order to remove as far as possible all risks arising from ships anchoring near the main Cable, a Notice, copy of which is given in Appendix A, describing the situation of

* Since the conclusion of the year under report, a fresh piece of Cable has been laid in the position originally selected, and there seems no reason to apprehend further interruption from the cause above mentioned.

† Since the conclusion of the year under report, the following Cables have failed:—

BENGAL CIRCLE.

Cable across the Channel Creek.
Ditto Damooda River.
Ditto Soane River (Patna line).

DACCA CIRCLE.

Cable across the Akyab Harbour.
Ditto Naaf River.
Ditto Myoo River.
Ditto Kurnoofoolly.
Deep Sea Cable between Akyab and Kyouk Phyoo.
Cable across the Padda River.
Ditto Dhullessary.
Ditto Ellenkhallee.

PEGU CIRCLE.

Cable across the Sarwarrah or Irrawaddy River.

PUNJAB AND ROHILCUND CIRCLE.

Cable across the Sutlej River.
Ditto Ganges.

SCINDE CIRCLE.

Cable across the Indus River.

CENTRAL INDIA CIRCLE.

Cable across the Godavery River.

BOMBAY CIRCLE.

Cable across the Nerbudda River.
Ditto Pajun River near Goa.

MADRAS CIRCLE.

Palliport Cable.

EAST COAST CIRCLE.

Russoolpore Cable.

the Cable, was published in the *Calcutta Gazette* and in the principal Newspapers of the Presidency and of the Ports of Akyab and Rangoon.

### Paumben to Tuticorin.

17. This line was opened in August last, and promises to be remunerative. The earnings of the Tuticorin Office, which in September were Rupees 203, had in April risen to Rupees 440, representing an addition to the income of the Department of twice this amount, less working expense of the Office, which latter may be estimated at Rupees 300 monthly.

### Shahjehanpore to Bareilly.

18. This line completes the loop-line from Futtyghur to Delhie. It was completed on the 6th of August, and has hitherto worked well. As its construction has not entailed the opening of any fresh Offices, it has not contributed directly to revenue; but as an alternative line, its construction has been of some advantage to the Department.

### Moradabad to Nynee Tal.

19. This line was completed on the 21st of May, and has hitherto worked well. The earnings of the Nynee Tal Office, for the first six months of the current year, average Rupees 333 monthly, representing income to the Department of Rupees 666, less the cost of management as before.

## RE-CONSTRUCTIONS OF OLD LINES.

### BENGAL CIRCLE.

20. A Cable of 2,640 yards in length was laid across the Hooghly River between Hospital Point and Kookrahatty.

21. The air spans crossing the Jumna at Agra and forming part of the lines leading thence towards Delhie and Cawnpore, which were composed of triple galvanized wire of No. 19 gauge, having frequently failed, have been replaced by a single wire of No. 8 gauge, which has stood well.

### PUNJAB CIRCLE.

22. The line from Shahjehanpore to Futtyghur, a distance of forty miles, has been re-constructed. The work was completed in the latter end of the official year under report.

23. The rivers in the Rohilcund District have been crossed by five permanent spans erected on lofty masts.

24. The line, Lahore to Mooltan, has been strengthened, two-fifths of the supports having been replaced by new ones.

## SHARWALA DISTRICT.

25. Forty miles of Hamilton's Iron Standards have been erected.

26. The line between Jullundur and the River Beas, a length of twenty-seven miles, has been strengthened, one-half of the supports having been renewed.

27. The line, Rawul Pindee to Murree, was originally constructed with a three strand twisted wire of No. 19 gauge. This, having frequently failed, was removed, and a single wire of No. 4 gauge substituted.

## INDORE CIRCLE.

28. The line Agra to Gwalior, a distance of 75 miles, has been re-constructed.

29. The line Goona to Wassind, length 545 miles, strengthened about three posts per mile, having been replaced by new ones.

## MADRAS CIRCLE.

30. Several of the masonry Pillars on the line Bangalore to Bellary, which had fallen during the year, have been replaced by Teak supports.

31. The line Mysore to Cochin, length 302 miles, has been made permanent.

## BOMBAY CIRCLE.

32. The line Surat to Deesa, 254 miles in length, has been made permanent.

33. The line from Dharwar to the Toongabudra River, a length of 80 miles, erected on black cotton soil, which was subject to frequent interruption, and gave much trouble during the rains of last year, has been placed in efficient order.*

34. The line from Khandalla to Callian, a length of 128 miles, and that from Broach to Deesa, a distance of 128 miles, have been placed in efficient order.

## EAST COAST CIRCLE.

35. The following lines in this Circle have been re-constructed:—

| | | |
|---|---|---|
| From Midnapore to Balasore ... ... | a length of | 75 miles. |
| Calcutta to Berhampore ... ... | „ | 116 „ |
| Bezwarah to Masulipatam, a branch line ... | „ | 43 „ |
| Bezwarah to Ongole ... ... ... | „ | 85 „ |
| Ongole half way to Madras, approximate ... | „ | 93 „ |

36. The following rivers in this Circle have been crossed by Cables or air Spans:—

The Hidgelee running East of Contai by a Cable.

The Kutjooree running about a mile on the South of the Cuttack Office, and the Soobonreeka running close by and West of Jellasore by Cables.

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* The result has, during the past rainy season, proved most satisfactory.

The Gundle Coomar which runs North of Ongole; and the Bhytarnee which runs 60 miles South of Balasore by air lines.

## SCINDE CIRCLE.

37. One hundred and twenty-five miles of Hamilton's posts erected.

38. The direction of the line has, in many places, been altered with the advantage of rendering the line more direct.

39. From Sukker to Hyderabad, length estimated at 78 miles. The line has been removed at places where the river was encroaching from two to three miles further inland.

40. An air line supported on masonry towers has been constructed across the Indus at Kotree.

41. The masts supporting air lines have been renewed at the following river crossings:—

At the Futtalee River near Hyderabad.
At the Goonee River near Mahomed Khan's Shanda.
At the Bunnas River at Deesa.
At the Baran River near Kotree.
At the Mullees River, about 11 miles from Kurrachee.

## CENTRAL INDIA CIRCLE.

42. No re-construction or extensive repairs have been executed in the Circle during the year.

## SOUTH EAST COAST CIRCLE.

43. The principal rivers on the South-east Coast of India have been crossed by air lines in addition to the Cables formerly in use, and an air line has also been constructed connecting the reef line between Paumben and the main land.

## EXTENSIONS OF LINES SANCTIONED OR PROPOSED.

44. A line of about 125 miles along the Ganges Canal line connecting Meerut with the hill station of Mussoorie, and bringing that important Settlement in telegraphic communication with India generally has been sanctioned.

45. Proposals for the following extensions were made to Government, but sanction to them refused on the grounds stated:—

A line from Lahore to Ferozepore, distance 50 miles. No private business was anticipated on this line, and the advantages to the public service to be expected from its construction were not considered commensurate with its cost. The same objection was taken to the proposed line from Lahore to Sealkote, a distance of 68 miles.

A line from Manantoddy to Cochin. This was considered desirable, but its construction was deferred on financial considerations.

46. The following extensions also appear desirable :—

1*st.*—The double line from Calcutta to Allahabad to be extended to Futtyghur, whereby the business of the Punjab with stations to the South and East of Futtyghur could be conducted without in any way interfering with that on the main line between Calcutta and Bombay. The route in such case taken by the first mentioned class of messages would be along one of the wires of double line hence to Burdwan, and thence along the loop line *viâ* Patna to Benares. From Benares the messages would pass along one of the wires of the double line between that place and Allahabad, and would be conveyed thence by the proposed second line to Futtyghur.

2*nd.*—The extension to Bombay of the above double line. The effect of this extension would be to permit of one of the two wires being employed on "through messages" exclusively, whereby the very considerable detentions of this class of messages, now constantly occurring from intermediate stations opening out for local correspondence, would be avoided.

## ABANDONMENT OF LINES.

47. The line from Poonamallee to St. Thomas's Mount, length 18 miles, has been removed consequent on the abolition of the Office at the former station.

## GENERAL WORKING OF THE LINES.

48. With the following exceptions, the lines have generally worked well. The Bulsar line, or that connecting Bombay and Bulsar, appears to have been hurriedly constructed, and has never given satisfaction. The direction chosen, crossing as it does the drainage of that part of the Western Coast of India which extends for 128 miles North of Bombay, has led to many difficulties in keeping up communication as well as in restoring it when interrupted. Its re-construction is imperative if its use is to be continued, and in such case it is probable that its direction may have to be changed. At present when communication along this line is interrupted, the traffic between Scinde and all parts of India, except the Punjab proper, is kept up by a cross line between Bulsar and Nassick necessitating the transmission of all messages along the single wire of the main line between Bombay and Agra to the great inconvenience of the direct business along the line in question which, during the time such messages are in transit, is entirely suspended.

49. The Bulsar line has, however, lost much of its importance since the failure of the Red Sea line of Telegraph, and it is possible that, before communication along the latter is restored, some other more direct route for messages between Kurrachee and this side of India will have been constructed, thereby rendering the existence of the Bulsar line, except for local traffic, of secondary consequence.

50. The Central India lines have never worked well. Interruptions have been constant and always protracted, frequently lasting for many days; and this, although a large

proportion of line guards have been employed for the sole purpose of preventing interruptions than has been the case in any other Circle, that of Dacca and the East Coast alone excepted.* Communication along the lines in question when possible has always been very tardy from a practice of repeating the messages at every station, a practice that leads to the inference that little is known in that Circle of the powers of the Morse Instrument for the automatic transmission of messages.

51. The lines of the Dacca Circle have never worked well, a circumstance partly but not mainly due to the hurried mode in which a portion of those lines were constructed. They have consequently been of little use either to the Government or the Public, and their inefficiency has prevented those financial results which there was good title to expect from the telegraphic union of Burmah with India.

52. The lines of the Pegu Circle have worked satisfactorily under circumstances of great difficulty. The rivers are the only highways through the Province, and there is consequently much difficulty in restoring communication when interrupted. During the first quarters of the year interruptions from the burning of the elephant grass jungle are frequent, and considerable lengths of the line, including posts and wire, are thereby destroyed. This serious cause of interruption exists nowhere else in India.

53. I annex Appendix B, a Table exhibiting the comparative frequency of interruption throughout the year in the various Circles per 100 miles of length, and of the comparative duration of such interruptions as have occurred in each. A specimen of the Form introduced for the purpose of recording interruptions filled in with those which occurred on the main line hence to Agra during the last month of the official year is also given forming Appendix C.

54. Propositions, which since the close of the year under report, have been laid before the Government, will, it is hoped, render the Establishments for keeping open communication both more efficient and less expensive than heretofore.†

55. I have said that during the year the lines have generally worked well. I should have also mentioned that the conditions of weather, on which the good or bad working of all Telegraph lines so much depends were very favorable; and I would here anticipate the current year's Report to mention that the experience of the rains now closing has proved how indispensable it is that all lines in the Department which are heavily worked, as that hence to Bombay, or on which the intervals between Signal Offices are great, should be provided with efficient insulation. Without it there must always be, during and after rain, much difficulty in signalling with its consequences, viz., great delay in transmission and great liability to error.

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* This remark applies to the East Coast during 1860. Since the control of this Circle was placed in the hands of its present Deputy Superintendent, Mr. B. C. Bailey, the line guards have been entirely dispensed with, and the line has been much freer from interruption than at any period since its construction.

† Since the close of the year under review, the Lieutenant-Governor of the Punjab has, with the utmost promptitude, acceded to my request that the Police of that Province should be required, as a part of their proper duties, to give immediate notice of the occurrence of accidents to our lines to the nearest Telegraph Office, and an order from the Supreme Government has subsequently extended this Police instruction to all parts of India.

56. The experience of the current year during which eleven river Cables have failed proves how little reliance can be placed on this mode of communication. The recent introduction of steel wire, having with a like weight a tensile strength double that of iron wire, will afford facilities not hitherto available for the construction of wide air spans, and will doubtless permit of several of the river crossings being so replaced with very great advantages whether the efficiency or the economy resulting from the substitution be considered.

## SIGNAL OFFICES.

57. The following changes in the Signal Offices have been made during the year:—

New Offices have been opened at the following stations, viz.:—Ramoo, Akyab, Kyouk-Phyoo, Padeng, Karical, Tuticorin, and Nynee Tal; and the Offices at Cox's Bazar, Jelasore and Sawant Warree, Stations of the Dacca, East Coast and Bombay Circles, respectively have been closed.

58. In Appendix D I have exhibited a list of the Offices either open or liable to be opened for correspondence as they stood at the close of the year.

59. The Table among other items of informations exhibits the amount of the cash collections at each Office during the last month of the year under review, and classifies the Offices under the two heads of Self-supporting and Unprofitable.

60. In the allotment of the Offices under the above two heads it has been assumed that the messages sent from and to an Office are alike in value, and that both exclusively result from the establishment of the Office. That consequently the receipts at Offices for the messages they may send represent one-half the income which the Department derives from their establishment, and that when such receipts exceed the half of the expenses of an Office, such Office may be considered as self-supporting.

61. In a previous part of this Report the expenses of an Office open for day correspondence only were set down at Rupees 300 monthly. An Office, therefore, whose collections reach Rupees 150 may be considered as self-supporting. Classified on this principle the Offices stand thus:—

| | | Rupees. | Offices. | Offices. |
|---|---|---|---|---|
| Self-supporting .. .. .. .. .. .. | | | | 59 |
| Unprofitable .. .. | Monthly collections under | .. 25 | 27 | |
| | Ditto ditto | .. 50 | 16 | |
| | Ditto ditto | .. 100 | 28 | |
| | Ditto ditto | .. 150 | 15 | |
| | | | — | 86 |
| | | | Total .. | 145 |

Included with the above are the seven Hooghly River Offices which are all departmentally unprofitable. The collections from six of them being under Rupees 10 each, and from the seventh under Rupees 50.

62. A considerable number of unprofitable Offices are at present required to insure telegraphic communication during the rains in cases where the interval between Offices would otherwise be then too considerable for direct work. This necessity and its consequent expense will cease as soon as any plan of efficient insulation has been introduced.

63. A further source of economy is available by the closure of all the smaller terminal Offices for night work, as a smaller establishment of Signallers would in such case suffice. This source of economy might be still further pushed by limiting the work on certain lines having little traffic or of little commercial importance, or which are not required for through correspondence to day work only. Such lines are those from Rangoon to Tounghoo, Prome to Thayetmyoo, Cawnpore to Fyzabad, Moradabad to Nynee Tal, Umballa to Simla, Rawul Pindee to Murree, Derah Ghazee Khan to Derah Ismail Khan, Poonah to Ahmednuggur, Sattarah to Mahableshwar, Belgaum to Goa, *vid* Vingorla, Mysore to Coonoor, Paumben to Tuticorin, Negapatam to Karical, Bezwara to Masulipatam, Dawlaishwaram to Coconada, Vizagapatam to Bimlipatam, and Vizianagram and Chicacole to Calingapatam. And to these might perhaps be added the Offices or some at least of the following lines, viz., from Futtyghur to Delhie through Moradabad, from Lahore to Peshawur, from Bangalore through Mysore, Mercara, Cananore, and Calicut to Cochin, and so long as communication with Europe is interrupted, the lines from Lahore and Bombay to Kurrachee might also be closed to night business.

64. A saving in the item of Office rents and in the cost of construction of new Offices is also available through the discontinuance of the practice at present almost universal of providing accommodation for the Signallers within the limits of Offices. The practice is departmentally very objectionable, and should only be permitted at stations which do not afford accommodation of a description suitable to the class in question at a moderate cost. This can rarely be the ease at any of the larger stations, and at such the Assistant in charge of the Office should be the only resident in it. But wherever it may be considered desirable that the Department should provide accommodation for the Signallers, it would be more properly furnished in a separate building than on the Office premises.

65. The list of Offices shows that 62 are the property of the Government, and that 83 are occupied on lease: The amount of rent of the latter is also given.

## HOOGHLY RIVER OFFICES.

66. On the 15th December complaint was made by the Chamber of Commerce of irregularities in reporting accidents to the Shipping in the River Hooghly. In reply, the Chamber was informed that I was quite prepared and most anxious to offer every facility for the rapid transmission of all intelligence regarding accidents to the Shipping which affected the interests of the mercantile community; but it was quite foreign to the duties of this Department to collect such information, neither had we the means at disposal for such a purpose; I had, however, directed Assistants in charge of river

stations to report all accidents to the Shipping that might occur within their observations without waiting for the reports that might be sent from the ships themselves, but such reports were most unsatisfactory from the imperfect knowledge of the Assistants in such matters, and I feared that, until some assistance could be given from the Marine Department, which did not appear then probable, we could not look for any improvement in the direction pointed out in their communication.

67. Much difficulty had been experienced in getting vessels passing the river stations to shew their numbers, and the Master Attendant appearing powerless in the matter; these Offices were prohibited from reporting the movements of vessels so refusing as well as those of the Steamers of which they might be in tow. Complaints were received from the owners of Tug Steamers to the effect that the application of the order was prejudicial to their interests, and that as many American and Arab Ships frequenting the Port were unprovided with signal flags as well as unnoticed in the Nautical Signal Codes, the Steamers towing such Ships were, however willing, powerless to show their numbers. In reply it was suggested that in the case of vessels not noticed in the Nautical Signal Codes their names might always be spelt by the numeral flags, or in the rare instances of their being unprovided with such flags, the Commander or Pilot could not be without the means of shewing a written name over the Ship's side which could be readily read from any of the Offices except those at Kedgeree and Saugor. It may be here further remarked that, as the Steamers towing such vessels are never without numeral flags, it would always be in the power of their Commanders to spell the Ship's name should the latter refuse to do so. It was also further pointed out that the object which Government had in view in reporting free of charge the movements of the Shipping was the information of the general public, which could feel no interest in merely knowing the movements of Steamers plying on the river. The correspondence on the subject is given in the Appendix E.

CLOSURE OF OFFICES BETWEEN CERTAIN HOURS ON SUNDAYS, CHRISTMAS DAY, NEW YEAR'S DAY, THE QUEEN'S BIRTH-DAY, AND GOOD FRIDAY.

68. The proposal to close the Offices of the Department as above between the hours 8 A. M., and 4 P. M., as well as to charge night rates on messages tendered during the hours when the Offices are open on those days, having been approved by the Government, the change was carried into effect on the 11th of February.

69. It was originally my intention that work throughout the Department should be entirely suspended between the hours mentioned, but it was considered desirable, in the first instance, to limit the change, in practice, to the refusal of message tendered for despatch without suspending the transmission to destination of messages already in transit. The change as above stated has proved of advantage to the Singalling Establishment, but to give the contemplated measure of relief to that class as well as to Assistants in charge, the transmission of messages in transit should also be suspended between the hours mentioned. The amount of inconvenience which the change in question occasions to the public may be estimated from the following Table, shewing the daily average of week-day and Sunday messages received into the Calcutta Office for the period of five

months preceding the introduction of the change, and when there was no restriction to time or extra charge on messages tendered for transmission on Sundays :—

*Return of Service and Private Messages received for transmission at the Calcutta Office from 1st January to 1st June* 1860.

| Months. | Number of Messages. | | | |
|---|---|---|---|---|
| | Service. | Private. | | Total. |
| | | Sent by | | |
| | | Europeans. | Natives. | |
| January ... ... ... | 351 | 1,207 | 1,231 | 2,789 |
| February ... ... ... | 463 | 1,119 | 1,501 | 3,083 |
| March... ... ... ... | 416 | 1,185 | 1,235 | 2,836 |
| April ... ... ... ... | 355 | 1,065 | 1,285 | 2,705 |
| May ... ... ... ... | 223 | 810 | 1,098 | 2,231 |
| Total ... | 1,808 | 5,386 | 6,350 | 13,644 |
| Deduct Sunday Messages ... ... | 63 | 235 | 749 | 1,047 |
| Remainders ... | 1,745 | 5,151 | 5,601 | 12,597 |
| Daily average of week-day messages ... | 11.55 | 39.62 | 43.09 | 96.90 |
| Daily average of Sunday messages ... | 2.86 | 10.68 | 34.05 | 47.59 |

## MESSAGES.

70. The total number of messages sent through the lines of the Department throughout the year was, exclusive of those on Departmental service, 2,40,611, of which 35,489 were on the Government service. The numbers sent from each Circle are shewn in the Table given as Appendix F. The Diagram, Appendix G, exhibits approximately the fluctuations in the number of each class of message during the year.

71. The cash receipts on private messages for the year were Rupees 5,03,849-15-10, being Rupees 81,238-15-3, or 19.22 per cent. in excess of the previous year. The cash receipts on service messages were Rupees 1,20,243-12-0, being Rupees 34-6-3 in excess of the previous year. The receipts of each Circle in each month for service and private messages, and the increases and decreases, as compared with the previous year, are given in Appendices H and I.

72. The Red Sea Line, which was opened for the transmission of Indian messages on the 1st of November 1859, was interrupted between Suakem and Aden on the 10th of February 1860, and failed between Aden and Kurrachee on the 22nd May 1860.

73. During the time this line was working, the number of service and private messages sent through it, and the total of the Red Sea Company's charges thereon was as follows :—

| Months. | From India. | | | | Remarks. |
|---|---|---|---|---|---|
| | Number of Messages. | | Red Sea Company's Charges. | | |
| | Service. | Private. | Service. | Private. | |
| | | | Rs. As. P. | Rs. As. P. | |
| From 3rd to end of November 1859 ... | ... | 14 | ... ... | 637 14 3 | |
| During the month of Dec. ,, ... | ... | 27 | ... ... | 1,303 2 2 | |
| ,, January 1860 ... | ... | 35 | ... ... | 1,641 13 10 | |
| ,, February ,, ... | 1 | 48 | 28 8 0 | 2,528 8 8 | |
| ,, March ,, ... | 1 | 40 | 80 12 1 | 2,030 8 2 | |
| ,, April ,, ... | 10 | 73 | 1,034 15 10 | 3,580 9 10 | |
| ,, May ,, ... | 12 | 77 | 1,564 14 2 | 3,808 12 2 | |
| ,, June ,, ... | ... | 3 | ... ... | 108 2 | |
| ,, July ,, ... | ... | ... | ... ... | ... ... | |
| ,, August ,, ... | ... | 2 | ... ... | 66 11 0 | |
| ,, September ,, ... | ... | 1 | ... ... | 98 12 0 | |
| ,, October ,, ... | ... | ... | ... ... | ... ... | |
| Portion of Totals ... | 24 | 320 | 2,709 2 1 | 15,804 14 1 | |
| Totals ... | 344 | | 18,514 0 2 | | |

74. Information respecting the earnings of the Company by messages sent from Europe to India is not available; but the amount may be assumed as approximately equal to that received for messages sent from India.

## ERRORS IN MESSAGES.

75. The errors which occur in messages are chiefly in those words whose initial syllables or letters are alike; for examples, "Distant" for "Discount," "Unless" for "Under," "Conveyance" for "Convene," "By" for "But," "There" for "These," "Fifty" for "Fifteen," and so on. It is the duty of the Assistant in charge to peruse every message received in his Office in view to ascertain its correctness, calling for repetition of any doubtful words ere passing it on to the next station; and were this duty strictly performed, this class of error would be of rare occurrence. But as the Offices of the Department are open day and night, it is physically impossible that the duty can be properly performed by him.*

76. Another class of error arises in the transmission of proper names, numbers, and unusual technical terms, towards checking which the context affords no aid. The chances of errors of this description are greatly reduced when the messages are repeated,

* Since the close of the year under report a proposition has been laid before Government for the appointment of a 2nd Assistant in each Office open for day and night work, a measure which, besides offering other important advantages, will admit of one responsible Officer being constantly on duty in the Signal Room.

but they occur even in repeated messages, and can only be prevented by an amount of attention to the orders directing repetition of proper names, &c., which on our harder-worked lines, such as that between Calcutta and Bombay, it is most difficult to enforce,* more especially during the rains, when, owing to the absence of insulation, the work is done with the greatest difficulty, and every thing tending to increase it, such as repetitions, is avoided.

77. Errors in names most usually occur in Native or unusual European names. In illustration I may mention that some time back under, I presume, the impression that greater attention was paid to the correct and prompt transmission of messages addressed to Europeans than was the case with those addressed to Natives, several Native senders were in the habit of adopting familiar English names, as Peter, Dr. Green, Grant, John, &c., under which to send their messages, and it is undeniable that, under that practice, the errors in the addresses of their messages were materially reduced.

78. This practice of necessity ceased when the rule (which it appears had at the time referred to fallen into abeyance) prescribing that every message should bear the real signature of the sender was enforced.

79. Errors are of frequent occurrence in the transmission of numbers, and it is most difficult to ensure messages in which such appear being correctly transmitted through any considerable stretch of line. Errors of this nature are confined almost exclusively to messages sent by Europeans, the simple Indian method of ensuring against alterations in bills of exchange, viz., that of giving the doubles being so habitually employed by Natives that errors in numbers are of comparatively rare occurrence in their messages.

80. A reference to the files of the Complaint Office shew that out of 130 complaints received from Natives during the year 10 only have reference to the incorrect transmission of numbers.

81. One most fruitful cause of errors in messages is the indiscreet condensation habitually practised by senders of messages. Every word looked on by the sender as superfluous, or the omission of which he considers possible without much risk of the meaning being misunderstood being by many senders sedulously struck out. Such contracted messages are frequently unintelligible to any one but the persons between whom they pass, and Office Assistants lose that control over correct transmission which the context of an ordinary message affords them.

82. It has been considered in the Department that the discontinuance of the practice of receiving from the tape record embossed automatically by the instrument, and the introduction of the much simpler and more rapid method of receiving by ear has had an injurious effect on the correctness with which messages are transmitted. The question

* Since the close of the year the Circulars given in Appendix J have been issued in view to the prevention, as far as possible, of this class of error.

is one open to very great difference of opinion, and it turns on the single point of whether the ear or the eye is the more trustworthy organ. It must be remembered that under circumstances of difficult transmission, whether from electrical storms, or from wet weather, the signals, whether recorded on the tape or received direct by ear, are alike imperfect, the words having frequently to be guessed at from a few letters only; but to the imperfections arising from imperfect transmission there are, in the case of the tape, others superadded, viz., the difficulty of adjustment of the recording style, in consequence of which the record is frequently indistinct, a difficulty further increased by the description of printing employed which being by slightly raised impressions on the paper is very trying to the eye, and to be read must be placed in a special light. In view to the reintroduction of the system of reading from the paper tape under more favorable circumstances than hitherto, instruments are on their way from Europe, in which the writing is done in ink, thus removing the difficulties of reading abovementioned.

83. The frequency of repetition in the case of messages between distant places, owing to the line being temporarily broken up into separate sections for local traffic, obviously multiplies the risk of error during transmission by the number of such repetitions. On the important line hence to Bombay a second wire would remove a large portion of the errors arising from this cause.

84. It has been already stated that much of the error in the transmission of messages is due to the difficulty of communication during rainy weather, in consequence of the almost total absence of insulation on our lines. The proportion of error from this cause is due not merely to the difficulty in sending intelligible signals, but to the necessity of much more frequent repetition than is necessary in dry weather, the liability to error being in direct proportion not to the distance signalled, but to the number of Offices at which the message has to be repeated, that is, taken down in writing and redespatched.

85. To shew the close dependence of the amount of error on the state of the weather, I have exhibited in Appendix K a diagram shewing the proportion of error in the transmission of messages throughout India, and the fall of rain in Calcutta during each month of the official year. The comparison would have been more properly made with the fall of rain in India generally, but information on this point was not obtainable.

## DELAYS IN MESSAGES.

86. There are several circumstances which lead to delay in the transmission of messages, one of the most prominent being the disputes which are constantly occurring between Signallers.

87. It will frequently happen that an impatient smart Signaller, who is endeavouring to get a message through his Office, finds the signaller he is in correspondence with is slow in receiving, and is constantly requiring words to be repeated. When this is the case the sending Signaller will refuse to work unless a smart hand is sent to the other instrument, and will insist on the Assistant in charge of the Office with which he is

corresponding being called. This the corresponding Signaller may refuse to do, wrangling then results, and the work of the line may thus be stopped for even half an hour at a time.

88. This cause of delay can never be entirely eradicated; but as it should rarely take place in a well managed Office, the evil may be very much reduced by weeding out the indifferent hands who still in many instances hold Office charge, and by a regular examination of the Office logs, in which disputes of the nature mentioned are always entered.

89. Delays on certain lines also arise from the amount of work so nearly reaching the carrying capacity of the line, that on any difficulty to communication, whether from wet weather, or an irregular and constantly changing electrical condition of the atmosphere, the carrying power becomes insufficient. Transmission in such cases occupies much longer time than usual, work gets into arrears, and unless all messages in excess to the known powers of the line at the time in question are refused, it will happen that after spending the entire night in signalling a fresh working day commences ere the previous day's messages have been worked off.

90. The remedy for this cause of delay, at least so far as wet weather is concerned in producing it, lies in good insulation; for the other cause of delay, viz. a constantly changing state of the electrical conditions, whether of the air or of the earth itself, no remedy exists; fortunately this last cause of disturbance is almost limited to the two or three weeks at the breaking up of the rains, and it is recognized as a sure harbinger of a change of weather.

91. A further cause of delay to a certain class of messages arises from the difficulty and consequent distaste which Signallers entertain to sending them. I refer to the class of cypher messages in which ordinary English words with concealed meanings are used. If it is borne in mind that Signallers are held pecuniarily responsible for all errors, and that though an error can be traced as having occurred between two particular Signallers, it is impossible to know by which of the two it was caused; and that in consequence the fine for the error is shared between them, it will be understood how sufficient a cause for wrangling and delay will arise during the transmission of messages of the class I have referred to. Should the receiving Signaller believe he has reason for thinking that a word sent him is incorrect—it may be such a word as "Dolt," "Spink," "Crewe,"—*all* three of which I remember to have met with in a *single* message from a Calcutta Firm—he insists that the sender is wrong; the latter insists that the right word has been sent;—abuse follows, and meanwhile the message is either a cause of detention to other messages, or is itself put aside to give place to others of less troublesome transmission. So much time indeed is often occupied by this class of messages that an extra charge might reasonably be made for their transmission.

92. Delays also occur from Assistants at intermediate stations refusing to keep open when they consider that the stations corresponding on either side can work automatically through them. This, however, is not always practicable, and disputes on this point are frequent, often leading to the "Clear the Line" signal being improperly given,

in order to force the intermediate stations to receive a message. This practice has led Assistants in some cases to doubt the genuineness of the "Clear the Line" signal until they have seen the message which is to follow it.

93. Improved discipline, which will be the work of time, will remedy this cause of delay.

94. A further source of delay to "Through" messages, as those between Calcutta and the Towns of Bombay and Madras, arises from the large amount of local traffic at certain intermediate sections of the line, whereby detention to the "Through" messages is caused, as well as error from the circumstance that as on the sections in question several stations will be open for correspondence, it becomes impossible to send the messages through such Offices automatically. The places where the large amount of local traffic referred to exist are between Benares and Agra on the line to Bombay, and between Berhampore and Bezwarah on that to Madras; at such points of the main line the local traffic should be accommodated by local systems of wires.

95. The absence of insulation leads, in the case of more than one line on the same posts, to the worst cases of defective communication. Even in the best insulated lines some current, will at all times pass from a line that is being used to every other line on the same posts, but the amount so passing bears so small a proportion to that of a working current that work is not injuriously affected thereby. The case is, however, with uninsulated lines, during wet weather, altered. Sufficient current will then pass from one line to another to seriously affect the work.

96. As an example I will take the case of the lines from Calcutta to Benares, and from Calcutta to Midnapore, which as far as Raneegunge are carried on the same supports. I will suppose that although no rain is falling the posts are sufficiently damp from previous rain to allow of considerable leakage across from the one line to the other. I will further suppose that on the Benares line there is continuous signalling in one direction, viz., from Calcutta to Raneegunge; but that on the other line the signalling is sometimes in the one direction and sometimes in the other. The result will be that when the signals of both lines are passing in the same direction, the current which leaks from the one line will tend to lengthen the dots and bars sent on the other line, and *vice versâ*, but irregularly, depending on the coincidence of the signalling, sometimes causing a bar to be unusually prolonged, at other times a dot to be transposed into a bar; but when, on the contrary, the currents are in opposite directions, the tendency of leakage will be to shorten the bars into dots, and to extinguish the dots altogether,—all these causes producing what is departmentally termed "Confusion" or "Contact."

97. If, however, rain is actually falling, or has fallen very recently, the case is much aggravated,—for then, instead of the signals reaching their destination in a feeble but partially intelligible state, should one line only be working, or confused, but still, perhaps, intelligible at some sacrifice of time should both lines be working, no portion of either message reaches the distant station; and what is sent by the one line returns by the

other line to the Office whence it was sent, and can be read off by the sender from the instrument which communicates with the other line.

98. It is often necessary in the first case, and always imperative in the last, either to throw one of the lines out of use altogether, disconnecting it at each end with the earth, in order, as far as possible, to prevent loss of current through it, or, what is far preferable, to join the ends of the two lines at their entry to each Office, thereby forming a single line offering but half the resistance to the current which was offered by either line separately, and facilitating signalling, but in a much larger proportion than would appear due to the mere halving of the resistance of the line.

99. This cause of delay is almost entirely limited to the immediate neighbourhood of the Presidency towns. The effect is to throw the messages which should go by several lines upon one, and to occasion loss of business from the messages which it becomes necessary to refuse. The only remedy is good insulation.

ENQUIRY INTO COMPLAINTS OF ERROR, DELAYS, OR OTHER FAULTS IN THE TRANSMISSION OF MESSAGES.

100. For enquiry into complaints respecting errors and such delays or other faults occurring in the transmission of messages as may be complained of by senders, a special Office termed the "General Complaint Office" was established by Sir William O'Shaughnessy in January 1860; but as for a considerable time the existence of the Office could only have been partially known to senders, its effective operation may be fairly considered as dating with the commencement of the year under review.

101. The following Table shews the nature and number of the complaints received during the year:—

| NATURE OF COMPLAINTS. | NATURE OF MESSAGES. | | |
|---|---|---|---|
| | Service. | Private. | Total. |
| Error only .. .. .. .. .. | 21 | 100 | 121 |
| Tardy delivery and error .. .. .. .. | 1 | 3 | 4 |
| „ only .. .. .. .. .. | 14 | 129 | 143 |
| Mis-delivery .. .. .. .. .. | 4 | 16 | 20 |
| Non-delivery .. .. .. .. .. | 43 | 199 | 242 |
| Complaints not admitted, not having been received within the prescribed limit of two months .. .. .. | 1 | 34 | 35 |
| Totals .. | 84 | 481 | 565 |

102. The disposal of these complaints was as follows:—

| Nature of Disposal. | | Nature of Messages. | | |
|---|---|---|---|---|
| | | Service. | Private. | Total. |
| Complaints justifiable .. | Refunds granted .. .. .. | 11 | 216 | 227 |
| | Entitled to refund, but not given not having been asked for .. .. .. | 47 | 56 | 103 |
| | Not entitled to refund, as when delay complained of was caused by interruption, and still admitted of the message reaching in less time than would have been occupied by the Post.. | 11 | 152 | 163 |
| Complaints groundless .. | As of non-delivery when the Department holds the addressee's receipt .. .. | 4 | 33 | 37 |
| Complaints not enquired into.. | Not having been received within the prescribed limit of two months.. .. .. | 1 | 34 | 35 |
| | Totals .. | 74 | 491 | 565 |

| | Rs. | As. | P. |
|---|---|---|---|
| Amount refunded .. .. .. .. .. .. | 1,487 | 11 | 8 |
| Amount recovered by fines on the Assistants and Signallers to blame .. .. .. .. .. .. | 1,719 | 7 | 1 |
| Balance in favor of Government .. .. | 231 | 11 | 5 |

The percentage of total complaints to total of messages sent is .. 0·2348

The percentage of total refunds to total collections is .. .. 0·275.

103. Considerable difficulty was experienced for some time after the establishment of the Complaint Office, when tracing delays owing to the uncertainty at all times attending the mode used in civil life of expressing time, especially when near noon or midnight, consequent on the risk of substituting the A. M. for the P. M. in signalling, and from the omission to note the change from the one to the other, as well as from an inherent uncertainty in the mode of expressing civil time, which is elsewhere remedied by supplementary expressions, but which the necessity of brevity excludes from use in the Telegraph. This uncertainty was got rid of by continuing the reckoning of the afternoon hours up to 24, whereby the necessity of the expletives A. M. and P. M. was obviated. The change was introduced without any difficulty, and has most successfully met the object of its introduction.

104. That the change has not been found inconvenient to the public I may assume from the circumstance that no unfavorable comments respecting it have been either

addressed to myself, or to the press; but as I am aware that it has been considered as having been made without adequate necessity, I have given in Appendix L copy of my Circular which introduced it, in which the departmental necessity for the change is set forth, as also an extract from a periodical of six months later date, advocating precisely the same change for civil purposes that I had introduced on departmental considerations.

105. From the above I think it will be admitted that the change to this notation of time was not introduced without sufficient departmental reason, and that the extension of the system to the *Telegraph Gazette*, and its employment in the various communications of this Department with the public, while saving trouble and risk of errors in the former, needs not be considered as causing any material inconvenience to the latter.

106. It should have been earlier mentioned that through the agency of the Complaint Office an objectionable practice was brought to light, which prevailed at Galle, in giving precedence to all local Mail Messages, *i. e.* addresed to, places on the island. The attention of the Superintendent of the Ceylon Government lines was called to the practice.

## NON-DELIVERY OF MESSAGES.

107. Beside the ordinary causes of non-delivery, such as an erroneous address given by the sender, or introduced in transmission, it will be seen that the loss of a message during transit is a much more frequent occurrence than is at first sight easily explainable. Losses caused by the mislaying of the copy of a message are rare, and what are here termed losses are the absence from the message drafts of one Office of messages believed to have been signalled to it by another. These losses arise in two ways: The first, at night, when a Signaller, while sitting at the instrument and during the short interval occupied by the distant Station in writing down the time of receipt and name of the Signaller of the last message, falls asleep, the transmission of another message from the distant Station is then commenced, and on its completion the receiving Signaller is only roused up by the repeated calls for acknowledgment of the message; this he is just conscious enough to give, believing it refers to the message he had previously received, and thus the message not having been taken down is, of course, lost. In the second case, we will suppose a Signaller has been receiving messages in the Allahabad Office from that at Benares. After he has completed the receipt of a message, he, without giving notice to the Benares Signaller, "joins over," thereby placing the Benares Signaller in communication with the Office next beyond, viz., that at Cawnpore. The Benares Signaller, unaware of what has occurred, continues to transmit his messages as he supposes to Allahabad; the messages, however, go to Cawnpore, and not being taken down there in consequence of no previous notice having been given that Benares wished to communicate with Cawnpore, are lost. The remedy for this is to insist that no word shall be signalled until the word preceding it has been acknowledged by a dot on the instrument, but this occasions a loss of time and on our hard-worked lines, and during bad communication Signallers will rather run the risk of fines for loss or error than incur the delay which such acknowledgment occasions.

## CHARGES ON MESSAGES.

108. The following changes in the manner of charging on messages were sanctioned during the year.

109. The charge on messages sent on Sundays and on the following Holidays, viz. Christmas Day, New Year's Day, the Queen's Birth-day, and Good Friday, was assimilated to that on messages sent at night.

110. The Indian charge on messages received from or sent through the Lines of the Red Sea Company were arranged on the principle common to that of other European Telegraph Companies, that is to say, in lieu of a charge per word for each word in excess of the number on which the minimum charge is levied, the charge is on every group of 10 or fewer words above that limit, and instead of giving certain words free, every word transmitted is charged for,—again in lieu of the rate being for direct distances of 400 miles and its multiples, the charge was made uniform for all places.

111. The rates adopted were, for a message of 20 words including address, Rupees 3, with a half rate additional for every additional 10 words or fraction of 10 words.

## FRAUDS.

112. The history of the only frauds known to have occurred during the year has been already alluded to in paragraph 9; a reference to the papers on that subject will shew that the line between Poona and Sattara being erected at a distance of two miles from the high road gave the opportunity of establishing unobserved a temporary Office intermediate between those Stations.

113. On the first establishment of the Telegraph in India it was considered desirable, in view to a saving of distance, to carry the lines as nearly as possible direct. Some saving* in distance was thereby effected, and the plan had besides the advantage of relieving the supports from the side strains to which they would have been subjected had they at all times followed the course of the roads, but unfortunately the disadvantage was at the same time introduced that the lines being taken over ground occasionally impassable to the Inspectors, the time and trouble necessary to detect causes of interruption became very materially increased. The opportunity which this mal-arrangement has given to frauds has rendered a re-construction of all portions of line more than 100 yards from the high road most desirable.

114. It does not appear to me possible by any change in the instruments altogether to prevent frauds of the nature alluded to. Instruments of the alphabetical class, such as the various Railway and Domestic dial instruments, permit of a message being rendered unintelligible while passing through intermediate Offices; but to none of those is the translation system, or that by which a message is automatically transmitted onwards from Office to Office to destination, the essential feature of the Morse system, applicable.

* To shew how slight an increase of distance is incurred by following the usual windings of a road, I may mention that if we suppose a road instead of joining the two points between which it runs by an absolutely straight line, to do so by lines all forming angles of 10° with the direct line, the increase of distance would be only 1·55 per cent.

There are also some recent fast working alphabetical instruments, which, from the rapidity with which they can be worked, would render the fradulently taking down of messages in transit between Offices an impossibility; but the construction of such instruments is much too complicated to permit of their introduction into India being thought of.

## EXAMINATION OF SERVICE MESSAGES.

115. In consequence of the large number of service messages not strictly on the public service, especially those relating to leave, and of the inordinate length of others, and of the practice of improperly clearing the line for messages not of sufficient urgency, to justify this or of employing the Telegraph for messages which might with good reason have been sent by post, I recommended to the Government the establishment of an Office for the purpose of examining every service message passing through the lines of the Department. The recommendation was approved and the Office established in December 1860 at a monthly cost of Rupees 80.

116. The result of the examination of messages for the portion of the year during which the Office was in operation is as follows:—

| | No. of Service Messages sent. | No. of Service Messages reported to Government as objectionable. |
|---|---|---|
| December 1860 ... ... ... ... | 3,277 | 60 |
| January 1861 ... ... ... ... | 3,223 | 69 |
| February „ ... ... ... ... | 3,039 | 57 |
| March „ ... ... ... ... | 2,922 | 80 |
| April „ ... ... ... ... | 3,220 | 67 |
| Total ... | 15,681 | 333 |

Percentage of objectionable messages to total of service messages sent 2·124.

## CHECK ON TELEGRAPH SERVICE MESSAGES.

117. In August 1860 it became necessary to take steps to diminish the large number of messages on Telegraph service constantly occupying the Lines, and in this view it was directed that from the 1st September all messages on the service of the Department should be paid for in cash, as is done in the case of private messages and in those on the public service, and that the receipts for such payments together with copies of messages so sent should be submitted to the Officiating Director General for audit. In the case of any message appearing to have been improperly or unnecessarily sent its value is retrenched from the Contingent Bill, and the cost of its transmission has consequently to be borne by the sender. The effect of these orders has been to check an abuse which by no other means could have been controlled, and to relieve the lines of a great and unnecessary burden.

118. It was also the very objectionable practice of some Deputy Superintendents to send threatening messages by the Telegraph to their subordinates, a practice in which they were aptly imitated by many below them,—this was prohibited; but the prohibition would have become a dead letter but for the operation of the above orders.

## FAULT BRANCH.

119. An addition to the Complaint Office was made in May 1860, having for its object the tracing of all delays, errors, or other faults in the transmission of messages, and all breaches of Departmental Regulations other than those complained of by the public, which latter it is the function of the Complaint Office *proper*, to investigate.

120. I had on the 14th June 1860, with the sanction of Sir William O'Shaughnessy, introduced the system, which has since continued to be acted on, of affixing what is termed an "Office date" to every message, that is to say, affixing to each message and signalling with it the date of its despatch along the lines, which was subsequently altered to that of its receipt into the Office from the sender.

121. These "Office dates" afforded excellent means for ascertaining delays in transmission,—it was at first a principal duty of the Fault Branch to trace these out. The system was, on the 4th September 1860, extended by directing that each of the three principal Offices, viz. those at Calcutta, Madras and Bombay, should report daily the time which had been occupied by such messages for the other two as had occupied the shortest and longest times respectively in transit—and a certain maximum having been fixed, in reference to the season, as sufficient for the transit of messages along the three main lines referred to, all which were found to have exceeded such maximum became the subject of enquiry by the Fault Branch. These reports were termed "Maximum and Minimum time interval Reports."

122. In addition to the duty of making these reports the Inspector in charge of the Calcutta Office was subsequently directed to bring to notice every message on which it appeared that a Departmental Regulation had been infringed, whether by sending the message without an "Office date," or sending messages "Bearing" other than those for which provision is made in No. XXXIX of the Rules, or by irregularly reporting notices of interruption and restoration to communication, &c. Enquiry into breaches of Departmental regulation has latterly become the most important feature of the Fault Branch, and the important part it thereby plays in upholding the discipline of the Department can scarcely be over-stated.

123. I may here mention that these "Maximum and Minimum time interval Reports" were, with the sanction of Government, made public from the 7th November 1860; at Calcutta through the medium of the Departmental *Gazette*, and at Madras and Bombay through the Newspaper Press of those places.

124. These Reports afford the public the most reliable materials for judging of the time likely to be occupied by a message passing along the main lines of Telegraph, and of the expediency or otherwise of employing the Telegraph for their communications, and are doubtless, in this point of view, of value to the public.

## CASH CHECKER'S BRANCH.

125. The system hitherto followed by Deputy Superintendents of Circles, of checking the cash collections of the various Offices by an examination of the counterfoils of the Bill books, appearing to me to be defective as well as not conducted in a satisfactory manner, a Central Office for the purposes of this check was formed on the 1st March last in Calcutta, in connection with the Complaint Office, for the examination of the originals of all messages and calculation therefrom of the amount, that should have been credited for their transmission, and for the comparison of such amounts with the acknowledgments of Treasury Offices for the remittances made by Assistants. The result of the operation of this Office has been most satisfactory, but the time it has been in operation (two months) is too brief to render its operations worth detailing.

## CIRCLE MESSAGE EXAMINATION.

126. The date available in the Complaint Office for ascertaining neglects in Signal Offices and for tracing faults in the transmission of messages having rendered the local Examiners' Offices which had been kept up at the head quarters of seven out of the eleven Circles at an aggregate cost of Rupees 849 unnecessary, I on the 30th September directed their abolition. Irrespective of the saving directly* resulting from this change a considerable amount of labor was saved to Signal Offices, where under the old system it was necessary to make copies of all messages passing through the Office for use in the Examiner's Branch of the Superintendents' Offices. These copies are now no longer required, the original received from the sender, and the copies which are necessarily taken down at the instrument at every repeating station and which are forwarded to Calcutta from each Office daily, forming the material with which the Complaint Office works. The change has had this further advantage that no trace of any message which has passed the lines of the Department exists elsewhere than in the Complaint Office in Calcutta.

## DELAY IN DELIVERY OF MESSAGES.

127. Instances of delay from the misconduct of private servants in refusing to receive messages, or to deliver them while their masters are engaged or at meals, are not unfrequent, and in consequence it became necessary to issue the Circular given as Appendix M. Detention of the delivery peons by delay in the return of their receipt books, whereby the delivery of other messages which they may have in hand is delayed is also not unfrequent, and the inability of some of the delivery peons to read the addresses which are written in the vernacular on the reverse of the covers has also been a cause of delay. This last was remedied by the dismissal of several peons who were found unable to read, and its recurrence prevented by the prohibition to entertain any man as a peon who had this disqualification for the employment.

* On the saving of labor consequent on this and on another change Mr. Bailey the Superintendent of the East Coast Circle writes as follows :—"The restriction on Telegraph service messages and the doing away with the copying of messages for Superintendents' and Deputy Superintendents' Offices has reduced the work of Signal Offices by fully one-half, and has done more to expedite the despatch of Government and private messages than any other arrangement that could have been made.

128. An additional cause of delay in delivery of messages in the case of large towns as Calcutta and especially in the case of messages addressed to Natives, arises from the neglect to give the residence of the person addressed; no one neglects this precaution in the case of a lettter, and although in settled societies the omission of the address from a telegram might not prejudice its delivery, the case is very different in India, where society is undergoing such constant changes. To obviate delays from insufficient addresses, an address book is kept in the Calcutta Office, which, as far as possible, is kept up to date, additions being made to it as opportunity offers of the names of persons who may call at the Office on business, and whose names do not appear in the Calcutta Directory; and in all message forms and message delivery books space is appropriated in which senders and receivers are invited to write their address.

129. On a message being received at Calcutta, the address of which is not given in the Directory or Office address book, and is not known to the peons, the message is advertised in the Departmental *Gazette* as undelivered, without waiting the result of attempts at its delivery.

130. In other Offices a list of undelivered messages is posted at the door, and message remaining undelivered for a period of one month is forwarded to the Compl Office in Calcutta.

## SIGNALLING INSTRUMENTS.

131. For the transmission of messages three descriptions of instruments are in use, viz. the needle instrument as introduced by Sir W. O'Shaughnessy, on the first establishment of Telegraphs in India, the American Morse instrument introduced early in 1857, and a simplification of the latter devised by Sir W. O'Shaughnessy in 1859, in which the tape record of the message was dispensed with, the messages being taken down by ear. Of these three classes the Morse instruments, constructed by Messrs. Siemens and Halske of Berlin, are incomparably the best, both for speed and accuracy of signalling. Unfortunately the number sent to India was very inadequate to the necessities of the Department, and as Sir W. O'Shaughnessy's modification of those instruments was, owing to their inferior workmanship, not found to answer, the departmental wants had to be met by recourse to the original needle instrument. Even on the main lines of communication the supply of Morse instruments was so insufficient that, although from three years' constant use the platinum contact screws, both of the manipulating key and writing lever were so much worn as in many cases to interfere materially with signalling, it was not without much inconvenience that those most needing repair could be withdrawn from use. Attempts were made to avoid the necessity of withdrawing these instruments for repair by preparing spare contact screws; but owing to a want of uniformity in the diameter and pitch of the original screws the attempt to render the instruments serviceable without removing them from Offices failed.

132. The efficiency of the Berlin-made Morse instruments, and the unsuccessful attempt of the Banglore Workshop to produce an efficient substitute on the Morse principle for the inconvenient needle instrument, and the urgent calls for instruments

throughout the Department, led me to direct my attention to the subject, and an instrument was devised which has proved in all respects as efficient as the Berlin-made Morse instruments without their objectionable complexity size and weight, and in which, with exception to the faculty of taking a paper record of the message, no one useful feature of the Berlin instrument is sacrificed.

133. Owing to press of work in the Surveyor General's Workshop, to which, in consequence of the inefficiency of the departmental workshop, the order for 20 instruments of this class had been sent, but two of these instruments were completed during the year, and it was not in consequence considered advisable to bring any of them into use until sufficient could be furnished for the Service of an entire line.

134. When repairing the Berlin instruments, the opportunity was taken so to modify them that the clock work for giving a progressive motion to the paper tape, a part more liable than any other to require repair, should be detachable for this purpose. The instruments after repair were, however, returned to the Offices without this clock work, as since the disuse of the tape record it had become superfluous; but the portion in question has been stored in Calcutta available for attachment to the instruments should circumstance render a return to the system of tape record, at any time hereafter, desirable. Should such a time arrive, the clock work when disordered can be removed for repair without any compromise to the perfect efficiency of the instrument further than that the power of recording its work is temporarily lost.

135. The number of Siemen's Morse instruments repaired during the year was 30.

136. I have already alluded to the defects of the needle instruments as having led to the introduction by Sir W. O'Shaughnessy of the Morse system into India, and as having prompted the efforts made by myself for replacing the large number of needle instruments, which the necessities of our Offices had kept in use, by instruments on the Morse principle. These defects are as follows:—

1*st.*—Want of speed in signalling.

2*nd.*—Difficulty in reading the signals causing injury to the eye-sight of the Signallers.

3*rd.*—Unfitness for use in combined circuits for automatic transmission.

4*th.*—The necessity, since the introduction of the Morse system, of a double alphabet.

137. The 1st of these defects arises from the persistence of the vibrations of the needles, and so far as this is due to induced currents it may be diminished no doubt by the employment of copper as the material for the frames of the coils on the damper principle, but it cannot be entirely removed so long as our lines are uninsulated, as, were the needle placed under sufficient directive control, whether by the action of strong permanent magnets, by the employ of the torsian principle for the suspension, or by any other mode, the current force, which under such arrangements would be needed for obtaining any signals whatsoever would much surpass what could be commanded during wet

weather on our uninsulated lines unless the system of relays and local Batteries were applied, an addition to the instrument which would remove its simplicity—the chief claim it possesses for use in India.

138. The 2nd defect arises partly from the persistence of the vibrations already mentioned, but chiefly from the very small size of the needle and its index, and the very small extent of its vibrations when, owing to wet weather, the current is weak.

139. The available remedies, viz., the employment of the controlling force and the use of larger needles, would require an amount of current which in bad weather could not be commanded.

140. The 3rd defect lies not in the absolute impossibility of combining together circuits worked by the needle instruments for automatic transmission, but in the extreme unfitness of this class of instrument for such adaptation and in the inferiority for translation purposes, which instruments so altered would present to those on the Morse principle.

141. The 4th objection is so far a serious one that, since the introduction of the Morse instrument, the needle system of signalling has ceased to be taught; and from the rapid extension given to the lines, joined to the numerous resignations and dismissals which had occurred among the old class of needle Signallers, the number qualified to use the needle instrument had become so few compared with the number of that class of instrument which it was necessary to continue in use that, during the rains when from accidents to cables it became necessary to open river side Offices, it was with the utmost difficulty that a sufficient number of needle Signallers could be obtained for such temporary Offices within reasonable distance.

142. The employment of two kinds of signalling instrument, where at least such necessitates the use of two alphabetical systems has this great drawback that it entails the employment of a special staff for each, the members of which cannot be transferred on an emergency arising from the one to the other. It is certainly very possible to be a skilful Signaller by both alphabets, and the faculty once acquired can be employed without risk of confusion, precisely as two different languages can be spoken with like absence of such risk, but as the needle instruments are undergoing a rapid process of extinction, the faculty being unnecessary, is never now acquired; and the only instances in the Department of its existence are in the case of some of the old needle Signallers who were induced to learn the Morse signals, and whose knowledge of the old system was from circumstances kept up. It is possible to use Morse signals with the needle instruments, but unadvisable as the difficulty of reading from the needle, at all times great, is much increased thereby. The sooner therefore that every needle instrument is displaced by instruments on the Morse system the better for the efficiency of the Department.

## DEFICIENCY OF SIGNALLING INSTRUMENTS.

143. The number of Offices in the Department, either always open for work, or liable at any time to be opened, and for which a provision of instruments is required, are as already shewn 145, of which 24 require one instrument each, 85 require two instruments

each, 30 require three instruments, 5 require four instruments, and one requires seven instruments If to these be added for temporary Offices liable to be opened on river banks on the failure of Cables 40 instruments, and for the four training Schools at five each, 20 intruments, and to these 20 per cent. spare, we get 446 instruments as the complement at present necessary for the efficient service of the Indian lines. Of this number there were but 190 of the Berlin-made Morse instruments in the Department during last rains, the period of the year when the demand for instruments is greatest, of which seven were in the Calcutta Workshop under repair, and the deficiency had to be made up with needle instruments, the modified Morse instruments made at Bangalore not having, as I have already mentioned, given satisfaction in use. The employment of Siemen's instruments was necessarily limited to lines of principal importance, whether in a commercial or political sense, leaving the work of all other lines to be carried on with the old needle instrument. Efforts as already mentioned were made to make up the deficiency by the instrument constructed on my own designs in the Calcutta Workshop, but, for the reasons already stated, without success.

## ON THE METHODS OF RECEIVING MORSE SIGNALS.

144. The two modes of receiving Morse signals are by eye from impressions embossed on a paper-tape drawn slowly along through the instrument, and by ear from the sound produced by the action of the portion of the instrument by which these impressions are produced; as in America so in India the latter simple method of receiving originated with the Signallers themselves, and as by some persons the great economy which results from the system is supposed to be obtained at a sacrifice of correctness, the question of the relative merits of the two modes of receiving is one well deserving of consideration, influencing as it very largely does to expenses of the Department in the cost of Establishments and instruments.

145. Assuming the message to have been correctly written on the tape, the question appears to me to be limited to this—Whether the eye or the ear is the more reliable organ?

146. The question is much like one which was raised at the beginning of the present century in connection with the art of graduation as applied to astronomical instruments, in which the celebrated Traughton and Smeaton took opposite sides; the former insisting on the superior delicacy of the optical, the latter on that of the mechanical means of minute measurement,—a question which appears now set at rest by the success of Mr. Whitworth's mechanical methods of measurement which permit the appreciation of the one millioneth of an inch, whereas the best microscopes have hitherto failed to separate lines which are nearer together than the one hundred thousandth of an inch.

147. Without experiments the question before us cannot be set at rest, and such experiments have not been tried, nor would their execution be easy, for the test is not so much one of comparative accuracy of perception of the two organs, which may be assumed equally perfect when unfatigued, as of their relative insensibility to fatigue, for it is when in that state that faults attributable to either organ chiefly arise.

148. In the absence of experimental evidence resort must be had to published opinions on the subject of which I have only succeeded in obtaining the following :—

149. Prescott* at page 346 says—"Since the paper has been abolished upon the "Morse lines, errors like the above rarely occur. The "ear is found to be a much more reliable organ for the "telegrapher than the eye. We do not think we should overshoot the mark if we said "there is not one error made in reading by sound where there were ten formerly in "reading from the long strips of paper. One reason is, as we remarked in a previous "chapter, that the operator in reading by sound has his eyes at liberty, and can write "down his despatch as he reads it by the tick with all the facility with which an expert "reporter can follow and note down accurately all the words spoken in debate." At page 231 he says—"Although the Morse Apparatus is a recording one, yet for the last "six years the operators in this country have discontinued the use of the paper, and "confined themselves to reading by the ear, which they do with the greatest facility. By "this means a great saving is made in the expense of working the telegraph, and far "greater correctness insured; as the ear is found much more reliable in comprehending "the clicks of the instrument than the eye in deciphering the arbitrary alphabet of dots "and lines." Again Shaffner,† at page 460, says—"In this station (Cincinnati) the sounding apparatus "are wholly used. No recording mechanism is there employed. The register and the "moving ribbon-paper are no more to be seen in that station." At page 463 he says—"The first operator to practically receive by sound was Mr. Edward F. Barnes, of New "York, and at that day it was regarded as a feat most extraordinary. But now it is "the daily practice in all the leading Telegraph Stations in America; only the local or "interior stations have in use the recording apparatus.

* History, Theory and Practice of the Electric Telegraph.

† Telegraph Manual, New York, 1859.

"If a telegrapher cannot receive perfectly by sound, he is not regarded as "an expert, and the ambitious young man ceases not until he has fully attained that "degree of perfection.

"Some years ago, as President of a Telegraph line, I adopted a rule forbid- "ding the receiving of messages by sound. Since then the rule has been reversed, and "the operator is required to receive by sound, or he cannot get employment in first class "stations. At the Cincinnati Stations, for example, there is not a recording apparatus, "and, of course, if an operator cannot read the language uttered by the mysterious "messenger, as transmitted over the wires, he cannot have employment there. No mis- "takes are made, and, in fact, many experts have informed me that the ear proves to be "more reliable than the mechanism."

150. The above extracts appear conclusive on the preference felt in America to receiving by sound. The impression of its superior accuracy may be influenced by the fact of its greater economy, half the number of operators sufficing, but there is clearly evidence enough to justify the existing practice of receiving by ear being continued so long as satisfactory evidence of a tendency to increase materially the proportion of error to which both systems are from other causes alike liable is absent.

151. I have considered the question of the methods of receiving apart from other considerations than that of their relative liability to give cause to error, but it should also be considered from other points of view. There is no more important function of the Morse instrument than its capacity of automatic transmission through combined circuits, and any thing which tends to compromise this quality is a serious evil. Now the use of the tape has this bad influence. It is necessary that the blunted point by which the embossed signs are produced should strike very evenly in the centre of a groove carried by a roller round which the paper-tape is enclosed, and that at the moment when one end of the embossing lever is marking the paper, the other end should strike fully on the point of the lower of two contact screws. But should some parts of the paper-tape be thicker than others, the contact referred to is liable to be faulty, and as it is through this contact that the automatic function is exercised, it is clear that no signal can be produced when such false contacts are made. The like effect results should the embossing point not strike fairly in the centre of the groove referred to.

152. For these bad contacts the only remedy is re-adjustment of the instrument the instant they are observed; but it is well known how incapable the majority of those who use instruments are in many cases to understand, and in more cases to apply the means of adjustment that makers of instruments place at their disposal. There are, therefore, good instrumental grounds for dispensing with the tape record.

153. It is true that Siemen's translating spring, providing an elastic contact incidentally removes much of the necessity of these adjustments, but it does not dispense with them entirely.

154. In Germany where the Morse system is more exclusively employed perhaps than elsewhere in Europe the Clerks receive by ear; but as the Telegraph in Europe is exclusively under the Government, the tape record has been retained as well for the proof absolutely required by the administration as also for control to be referred to by the Signaller in case of doubt as to any part of the message. The former necessity has not been felt in this Department; and the latter convenience if it be taken advantage of by Signallers would, I consider, be purchased by the re-introduction of the tape record at a price beyond its value.

## INJURIES TO INSTRUMENTS BY LIGHTNING.

155. Of the several methods in use for protecting the instruments and Offices from the effect of lightning no one appears to be entirely successful, nor, as these means depend as a general principle, in offering the lightning a more direct and less resisting path than is offered by the long coils of fine wire which form the passage for the current through the instrument, can it be expected that instruments can be entirely protected by such means. Some portion of the flash, however small *must* at all times pass through the instrument, and it can be well imagined that the same fraction of a small flash of lightning, which may so pass without burning the coils, may in the case of a larger flash destroy them. The only means which appear to me likely to secure practical immunity to offices and instruments is the free use of conductors in good communication with

the earth attached to the supports of the wire, and the adoption of vacuum protectors to the Offices,—a mode of protection, however, which does not appear to have been hitherto any where brought practically into use.

156. The injury occasioned to instruments by lightning rarely extends beyond the burning of the wire of the relay coils, the instruments being thereby rendered useless until the coils have been replaced by spare ones but it has had this disadvantage that, owing to the only relay wire in store having been made in Calcutta and from comparatively short lengths of copper wire, the continuity of conduction was broken by numerous joints made by the mere twisting of the wire ends together,—a mode of junction that never can remain perfect in use, whatever it may have been in the first instance; the relays repaired with such wire lose much of the sensitiveness that should be their most marked characteristic.

157. The use of relay wire obtained from Europe will for the future remedy this defect.

## TIME BALLS.

158. The Time Balls at the Presidency towns commenced operation on the dates following:—In Calcutta 14th March 1859, in Madras 14th April 1858, in Bombay 15th January 1859.

159. The working of the Calcutta Time Ball having been liable to frequent mischances which appeared to me to be chargeable on the electrical arrangements, a different class of Battery and a different description of Electro Magnet was made use of from July 1860. The results have been satisfactory as the Statement given in Appendix N. will shew.

160. The complaints of irregularity in the action of the Time Ball at Madras having been sufficiently serious to attract the attention of the Madras Government, I was addressed by them on the subject. Similar changes to those made in the electrical arrangements of the Calcutta Time Ball were introduced at Madras in January 1861 with like success, as will be shewn from the Madras Statement also given in the above Appendix.

161. The Time Balls at Calcutta and Madras being at a considerable distance from the Observatories from which the current for effecting the discharge is sent, the electrical management in both cases is very properly under the charge of the Telegraph Department; this is not however necessary with respect to the Time Ball at Bombay, as the Observatory and Time Ball Tower are parts of the same building, and consequently no electrical difficulties of management should exist.

162. The distance of the Calcutta Time Ball from the Observatory is 2,560 yards, the communication being by an underground percha-covered copper wire laid under Sir W. O'Shaughnessy's instructions, in a cement of Armenian bole and rosin, protected by a sheet iron trough, and which has never occasioned any trouble. The communication between the Madras Observatory and Time Ball is by an overground wire, the distance being three miles. The wire between the room of the Bombay Observatory, which contains

the clock, and the discharge apparatus is 18 yards. The height at which the Time Balls at Calcutta, Madras and Bombay are shewn is 110 feet 63 feet 6 inches and 62 feet, respectively.

163. The astronomical management of the Calcutta Time Ball is under the Surveyor General of India; that of the Madras Ball under the Government Astronomer there, and that of the Ball at Bombay under an Officer of the Indian Navy.

164. As respects the working of the Bombay Time Ball, I give in the above Appendix an extract from a letter from Lieutenant Mitcheson, of the Indian Navy, in charge of the Government Observatory at Bombay, from which it will be seen that when he took charge of the Observatory on the 26th September, the Time Ball was under repair and not working, but recommenced work on the 1st January 1860, and. that from that date to the date of his letter (26th March) it had failed three times, though on each occasion on a second trial the Ball had been dropped.

165. Such failures could only arise from electrical defects, and judging from Lieutenant Mitcheson's statement that it is not found possible to trust to the Ball during the monsoon, I conclude that the electrical arrangements are faulty, and should be amended.

## STORES & WORKSHOPS.

166. On my recommendation to the Government the control of the departmental stores, instead of forming a duty of the Superintendents at Calcutta, Madras and Bombay, to which all shipments of stores from Europe were as rule consigned, was formed into a separate branch of departmental administration by the appointment of a special Officer to whose duty as Store-keeper were added the management of the Calcutta Workshop. The appointment took effect on the 9th January; so brief a period before the close of the Official year that the results can scarcely claim a place in this Report.

167. The most prominent want in this branch is that of proper store-rooms, and especially of adequate means of storing submarine cable, which, for want of such means, becomes rapidly unserviceable.

168. On the origin of the Department its requirements as respects instruments were met partly by the Surveyor General's Establishment, and partly by the Gun Foundry. Subsequently in 1854 an Establishment was organized at Agra termed the "Central Workshop," in which I believe the larger portion of the departmental work was executed. This workshop was removed to Calcutta in the early part of 1857. At the end of 1857, on the return of Sir William O'Shaughnessy, a workshop was established at Bangalore; and on his visiting Calcutta in November 1859, in consequence of the out-turn of the work being considered unsatisfactory in reference to expenditure, the larger portion of the Establishment of the Calcutta Workshop was dismissed, only sufficient workmen being retained to meet mere local wants, the mass of the work of the Department being performed at Bangalore, which thus became the Departmental workshop for all India.

169. On my joining the Department three months before the commencement of this official year, I found the workshop in every respect inefficient, the workmen very

inferior, the tools unfit for use, all worth the expense of removal having been sent to Bangalore. Little, therefore, could be done beyond training an Establishment (for the majority of those who originally composed it had gradually to be dismissed), and executing current repairs to such of the instruments as could be withdrawn from use for the purpose, and keeing up the supply of those of the Needle class ; this at least was the case until towards the close of the year when 30 Morse instruments were repaired.

170. One great disadvantage under which the workshop has labored has been in the want of fit accommodation, the only space available being a dark godown on the ground floor of the premises in Clive Street.

171. The inconvenience occasioned by this want of workshop accommodation is very great. It is a bar to every thing in the shape of experiment, and to operations which require space, or which demand the application of heat. Experiments on the strength of our posts wire and other materials are required, but cannot be made; much of our work has to be given to contractors which could be more cheaply and much better done by ourselves, and there is no accommodation for the manufacture of cables.

## ESTABLISHMENT.

172. The strength of the Establishment at the commencement and termination of the year, exclusive of Office servants and others drawing less than 10 Rupees per mensem, is shewn in the following Table:—

| Grade. | Strength on the 1st May 1860. | Strength on the 1st May 1861. |
|---|---|---|
| Director General ... ... | 1 | 1 |
| Superintendents of Divisions ... ... | 3 | 3 |
| Deputy Superintendents of Circles ... | 9 | 10 |
| Assistant Deputy Superintendents ... | 6 | 6 |
| Inspectors ... ... ... | 87 | 80 |
| Assistants in charge of Offices and Signallers | 487 | 548 |
| Probationers ... ... ... | 105 | 128 |
| Artificers ... ... ... | 127 | 118 |
| Overseers, Mounted Patrols, Mistries, Lascars, &c. ... ... ... | 134 | 99 |
| Assistant Auditor of Account ... ... | 1 | 1 |
| Head Accountant of Circles ... ... | 10 | 10 |
| Assistant Accountants, Record-Keepers, Cash Keepers, Clerks, Writers, Sirkars, &c., ... | 151 | 155 |
| Message Examiners ... ... ... | 11 | ... |
| Store-Keepers ... ... ... | 10 | 8 |
| Superintendent Printing, Compositors, Pressmen, Lithographer ... ... | 11 | 18 |
| Head Mechanic, Maistry, Carpenter, Filer, &c., for Workshops ... ... | 8 | 8 |
| Total ... | 1,161 | 1,193 |

SIGNALLERS.

173. The discipline of this branch of the Establishment has not been satisfactory,—misconduct, resignation to avoid dismissal and dismissal have been frequent. One cause of misconduct has been the knowledge the Signallers had, that owing to the short-handedness of the Department, they were if dismissed pretty sure of being re-employed, if not in their former Circle, at least in some other. The remedy for this state of feeling was to refuse to re-admit any one who had, as a finish to his misconduct, chosen to resign, as well of course as to prohibit the re-admission of any one who had been dismissed;—the order notifying dismissal, or resignation under unfavorable circumstances, being in all cases coupled with a statement of disqualification for re-admission.

174. This misconduct is far less frequent in the Circles or portions of Circles situated in the Madras Presidency than elsewhere in India, which I am disposed to attribute not to any peculiarities in Circle management, for, with large differences in this point, there is none in the behaviour of the Signallers, but to the greater difficulty that exists in Southern India in obtaining employment, and the relatively better pay of the Signallers in consequence of the greater cheapness there of the necessaries of life.

175. A further cause of misconduct was the absence of any register of character, and the necessary consequence that, while no amount of good behaviour could as a rule (owing to the many changes that were constantly occurring among the higher Officers of the Department) be expected to be remembered permanently in the Signallers' favor, so no amount of misconduct, however gross, even though leading to dismissal, was likely to be permanently remembered against them. The remedy for this state of things lay in the establishment of a "Character Book" in which all points throwing light, favorable or otherwise, on the character of the person, however known, would be recorded. The materials for its compilation were not as a general rule collected until April 1861, so that the effects of its introduction have not yet been shown, but these cannot fail in being good.

176. Circular 96¾ (Appendix N) gives a page of the Character Book hypothetically filled up. All unfavorable reports regarding Signallers and others that are brought to notice by the Deputy Superintendents, and all carelessness or inattention to duty that may be traced through the agency of the Fault or Complaint Branches is noted in the Character Sheet of the person concerned, and on vacancies for promotion occuring such are regulated by the "facts favorable or unfavorable" that may appear against the persons first on the seniority list for advancement.

177. Many of the resignations were occasioned by the dislike of the Signallers to being sent to Offices at a distance from their homes, or from those parts of India in which their childhood had been spent. The exigencies of the service doubtless necessitated many removals, but a large number were entirely unnecessary, and could not fail to lead to dissatisfaction. The removal of a person on small salary is, even though his ostensible expenses are paid which is always done, a great evil, and the liability to frequent removal must be felt as equivalent to a material reduction in the amount of

salary. The hardship of a removal was also very great in the case of married persons of whom there is a large number among the East Indian Signallers. I have, therefore, prohibited all such removals except under my own sanction.

178. Removal was frequently made use of as a punishment. If an Office did not work satisfactorily, the Assistant and perhaps some of the Signallers were removed to some other Office. It is possible some advantage may have arisen from this practice, though I am not disposed to believe so; but it appears to me far preferable to make a man do his duty where he is, or failing success in this to remove him from the Department altogether, than to move him to some other Office on the chance of his behaving better after his punishment, but, as it seems to me with the greater chance, if he has really deserved the punishment, of his inoculating the Signallers of his new Office with his own bad habits. These removals were further a cause of considerable expense, as their cost was borne by the Department.

179. The Signallers are engaged on the condition of serving in whatever part of India it may be necessary to employ them; but much reluctance is felt to transfer to Pegu owing doubtless in part to the fact of its recent acquisition and to the little that is consequently known of it, but partly also to the dearness of certain classes of provisions there, and the order of a Signaller to Pegu is almost constantly followed by his resignation.

180. The Signallers so transferred are usually those whose characters do not stand high in their own Circles, and the loss of whose services would, but for the scarcity of the class, be considered a gain; but it is on general grounds most desirable that the persons of the Department whom it may be necessary to transfer to Pegu shall at least not be pecuniarily in a worse position than when serving in India, and I have in consequence recommended a scale of special allowance for all such, which, if sanctioned, will I trust remove some of the repugnance hitherto felt to service in that Province.

### Training Schools for Signallers.

181. The Conoor Training School, which had been established in April 1859, was abolished on the departure of Sir William O'Shaughnessy for England in August 1860. The Department was then short handed and without the means of training Signallers. Sanction for the establishment of four Schools was given by the Government in February 1861, and these Schools situated at Barrackpore, Meerut, Madras and Bombay, came into operation shortly afterwards. The numbers trained and posted to Offices during the year were as follows:—

| | | |
|---|---|---|
| In the Barrackpore School | ... | 2 |
| In the Meerut „ | ... | 20 |
| In the Madras „ | ... | 0 |
| In the Bombay „ | ... | 10 |
| Total | ... | 32 |

182. In addition to the Signallers trained in these Schools it became necessary to permit of Signallers being trained in Offices, and so far as a comparison with the results of the Meerut School permits of an opinion being formed, it is decidedly in favor of training in Offices. But, viewing the age at which lads are admitted into the Department, viz. 14 to 18 years, there are considerable advantages in the system of training in Offices; for the lads so trained being usually engaged on the spot, their parents being probably at the Station they are under their eye, and a more moderate rate of pay will content lads so situated than would otherwise be necessary.

183. In the four Schools there are still 88 under training; as soon as these are fit for Office duty, the full complement of Signallers will be completed and the Schools will be closed; and I am sanguine that a judicious selection of a limited number of lads for training in Offices will be sufficient to fill all vacancies in the grade of Signallers that may be hereafter caused by deaths, resignations, &c., and render the re-opening of the Schools unnecessary.

## SERVICES OF OFFICERS.

184. It has been usual in the Annual Reports of this Department to mention the names of such Officers in it as had rendered distinguished good service. I shall confine such mention to persons in the grades of Superintendent and Assistant Superintendent, or who were officiating in such grades, and in the order of seniority in the Department of the persons reported on.

185. Mr. Wickham held charge of the Bombay Circle during the year under review, and deserves much credit for his successful efforts in discovering the manner in which the frauds, reported in an early portion of this Report, were effected, and in bringing to trial the persons by whom they had been committed. Mr. Wickham's management in other points has been good, and has been characterized by economy and by attention to Departmental orders.

186. Mr. O'Donnell's management of the Pegu Circle has shown much method, and has been characterized by great zeal and intelligence, as well as by strict attention to departmental orders. His arrangements connected with the construction of the Line across the Youma Doung Range, connecting the Lines in Pegu with those of the rest of India, have been most judicious.

187. Mr. Bailey in charge of the East Coast Circle has held that charge only seven months, having been retransferred to the Indian Lines from the superintendence of those of the Ceylon Government. Mr. Bailey's management has in all points been excellent, but he has particularly distinguished himself in the exertions made to insure that the discreditable working of the Lines of the East Coast Circle during the past rains should not continue during the present rains. In this object Mr. Bailey has

made a personal inspection of the entire of his Lines; his journies having been performed entirely during daylight when alone any inspection deserving the name is practicable, and having aggregated 955 miles—a total of travelling so far as the personal labor involved is concerned, surpassing that performed by all the other Superintendents put together. It is further greatly to Mr. Bailey's credit that the journeys were performed while suffering under a very painful ailment which prevented him from standing erect, except for brief periods. During this period Mr. Bailey reconstructed 300 miles of Lines, thoroughly repaired 600 miles, and sufficiently strengthened 280 miles to secure their good working during the current rains. Mr. Bailey's management has been further characterized by strict attention to departmental orders.

188. Mr. Galbraith took charge of the Punjab Circle in January, when a large portion of the working season had passed, and when little opportunity remained in his power to remedy the state of disorganization into which the Lines and Establishment of that Circle had fallen during the mutiny, and from which they had not then recovered. His management has been characterized by eminent habits of business, by the most conscientious scrutiny of the bills of his subordinates, and by an energy and ability that would bring him distinction in any branch of the public service. On the points I have mentioned I consider Mr. Galbraith second to no one in the Department. On the important point of attention to departmental orders, and of insisting on such being observed by his subordinates, Mr. Galbraith's management has been most successful.

189. Mr. Teale was appointed as my personal Assistant in July 1860, and to his zealous co-operation and active business habits much of any success that has attended my efforts to improve the discipline and working of the Department is due.

190. Mr. M. K. Man has held charge of the Indore Circle for six months; succeeding Mr. Todhunter in that charge, and bringing to light mis-management in the head Office of the Circle that had been made the subject of comment by the Newspaper Press. Mr. Man's management has been characterized by strict attention to departmental orders and by remarkable success in the working of his Offices, which are a principal portion of those on the main Line between Calcutta and Bombay. Mr. Man has also done much to enforce economy.

191. Mr. H. J. Walton officiated in charge of the Bengal Circle for seven months of the year under review, and conducted his duties with great credit. His administration was characterized by great personal energy, by success in the working of the Circle, and by attention to economy in the bills of his Offices.

192. Lieutenant Mallock's services have been limited to four months of the year, they have been in every point of view excellent. The creation of the special appointment of a Superintendent of Stores promises under his management of the Office to prove the most advantageous departmental change that has been effected during the year.

## FINANCE.

193. The expenditure of the year was as follows :—

ON WORKING ACCOUNT.

| | Rupees | As. | P. |
|---|---|---|---|
| For general Superintendence, being the charges for the salaries of the Director General and of the Account, Complaint, Fault, Cash-checker and Service Message Examiner's Branches of his Office... | 34,055 | 15 | 6 |
| For Divisional and Circle Superintendence, and for all other salaries than those already mentioned ... ... ... | 8,46,949 | 10 | 6 |
| Signal Office contingencies, Stores, &c. ... ... ... | 3,45,745 | 12 | 3 |
| Line contingencies and cost of repairs ... ... ... | 1,57,146 | 5 | 0 |
| Total of working charges ... | 13,83,897 | 11 | 3 |

ON CONSTRUCTION ACCOUNT.

| | Rupees | A. | P. |
|---|---|---|---|
| Construction of new Lines ... ... ... | 1,26,838 | 14 | 8 |
| Reconstruction of existing Lines ... ... ... | 1,87,092 | 14 | 6 |
| Construction or purchase of Signal offices ... ... ... | 20,034 | 2 | 5 |
| Total of construction charges as per Appendix O ... ... | 3,33,965 | 15 | 7 |

194. The working charges received a permanent increase in consequence of the addition to the length of Lines and number of Offices and corresponding increase in other items of working charge resulting from the completion of the Tuticorn Line and of that joining British Burmah with the continent of India. An increase to these charges was also occasioned by the entertainment of a considerable number of Signallers, rendered indispensable by the short handed state of the Department at the commencement of the year.

195. Comparing, however, the charges on account of Establishment shewn in the two years, it will be seen, that whereas these are shown in Appendix II of the Report for 1859-60, exclusive of house rent Rupees 44,148, to have been Rupees 10,13,304, they were in the year under review Rupees 8,81,005, the saving being Rupees 1,32,299.

REVENUE.

196. The collections on service and private messages during the year were as follows :—

| | Rs. | As. | P. |
|---|---|---|---|
| Service ... ... ... ... | 1,20,243 | 12 | 0 |
| Private ... ... ... ... | 5,03,849 | 15 | 10 |
| Total ... | 6,24,093 | 11 | 10 |

197. A comparison with the previous year shews an increase on the former class of messages of Rupees 34-6-3 or ·028 per cent.; and of Rupees 81,238-15-3 or 19·22 per cent. in the case of the latter class of messages.

198. The increase on account of private messages has been largest in the Bengal, Bombay, Punjab, Indore and East Coast Circles, the proportion in the several Circles being as follows :—

| | Rs. | As. | P. |
|---|---|---|---|
| Bengal ... ... ... ... | 28,847 | 12 | 0 |
| Bombay ... ... ... ... | 17,663 | 0 | 4 |
| Madras ... ... ... ... | 2,607 | 15 | 8 |
| Punjab ... ... ... ... | 5,131 | 5 | 2 |
| Central India ... ... ... | 1,560 | 11 | 6 |
| Dacca ... ... ... ... | 2,403 | 2 | 9 |
| Indore ... ... ... ... | 12,214 | 12 | 6 |
| East Coast ... ... ... ... | 8,882 | 13 | 4 |
| Scinde ... ... ... ... | 701 | 5 | 11 |
| South-East Coast and share due by Ceylon to India... ... ... ... | 2,381 | 11 | 4 |
| Gross increase ... | 82,394 | 12 | 6 |

The above results are exhibited in Appendices H and I, which shew also the working of the year under report as contrasted with the preceding year.

199. From the Statement given, as Appendix P, it will be seen that, whereas the expenditure is Rupees 13,83,897-11-3, the income from all sources is Rupees 6,35,817-6-11, or only 45·943 per cent. of the expenditure, exclusive of Telegraph Service Messages and those sent and received by the Marine Department. Every effort is being made to reduce, as far as may be possible, this disparity between the expenditure and the income.

## AUDIT.

200. The arrears of accounts were at the commencement of the year very heavy; those arrears are attributable partly to the rapid increase of the Department without corresponding increase to the strength of the Audit Branch of the Establishment, as also in the North-Western Provinces, to the disorganization confusion and destruction of records caused by the mutinies.

201. During the year, however, nearly all the Accounts Current for 1859-60 were examined and sent in to the Auditor General, as well as many of previous years, some dating so far back as February 1858.

202. The inefficient balances were also reduced during the year by Rs. 6,53,922-5-6, though, owing to the insufficient strength of the Audit Establishment for the double duty of the arrears and current work, much still remains to be disposed of, and doubtless a considerable sum in the accounts of the North-Western Provinces and Punjab Circle will, in consequence of the destruction of the records, which would have exhibited its mode of expenditure, have to be written off.

## GENERAL MANAGEMENT.

203. This will be best illustrated by the Circular instructions issued to the Department during the year so far as they affect its general management. Copies of those with such corrections as have been made on re-issue and numbering 29 are given in Appendix N. Those excluded number 113 and are such as were of a temporary character, or on matters of audit and account, and which, being in no way peculiar to this Department, can throw no light on the character of its administration.

*List of Circulars forming Appendix N.*

| No. | Subjects. |
|---|---|
| 3 | Rules for Messages for transmission by the Red Sea Line (applicable to those sent by other similar Lines). |
| 4 | Directing the addition of an Office date to all Messages. |
| 30 | Prohibiting the despatch of Messages on departmental service, otherwise than on payment, and prescribing Rules for the recovery of expenditures on this account. (See also Circular No. 69.) |
| 37 | Respecting the transmission of Messages. |
| 38½ | Introducing a form of "Interruption Report." |
| 43 | Introducing a special notation of line. (See also Circular No. 71.) |
| 44 | Instructions respecting undelivered Messages. |
| 52 | Abolishing the Message Examiner's Branch of Deputy Superintendent's Offices. |
| 53 | Directing a report to be made by Telegraph of the Message last received in time for each Overland Mail Steamer. |
| 63 | Prescribing certain routes for Messages passing between certain places. |
| 65 | Prohibitions in respect of certain Telegrams. |
| 66 | Instructions respecting Messages on departmental service. |
| 69 | Amendment of Circular No. 30. |
| 71 | Continuation of Circular No. 43 on a special notation of time. |
| 72 | Prohibitions to the perusal of Messages by Superintendents of Circles. |
| 76 | Rules respecting transit Messages. |
| 80 | Responsibility for error in Messages. |
| 82 | Arrangements respecting the transmission of departmental Messages. |
| 88 | On delays caused to the delivery of Messages by the misconduct of private servants. |
| 92 | Closure of Signal Offices on Sundays and other holidays. |
| 96¾ | Introducing character rolls of all persons in the Department. |
| 98½ | On securing secrecy to Messages in Offices. |
| 99 | Introduction of the new Store system. |
| 101½ | On the method of doing business with the Railway and other private Lines of Telegraph. |
| 101⅞ | Establishment of Training Schools. |
| 102 | On certain arrangements for Line conservancy. |
| 102½ | Instructions in respect of interruptions. |
| 105 | Instructions respecting refunds. |
| 106 | Instructions respecting Message Drafts. |

## DEPARTMENTAL ORDERS.

204. Since the 1st January the Departmental Orders have been issued in a printed form, and from that date a copy of these orders has been issued to every Signal Office in the Department, as well as to the five branches of the Director General's Office, to the Superintendents of Divisions and to the Deputy Superintendents of Circles. These orders are, as far as possible, limited to changes affecting the "personnel" of the Department, such, for instance, as entertainments, promotions, reductions, transfers and dismissals, and to changes in the pay of Signallers, leaves of absence, &c.

205. All orders connected with the duties of the various grades of the Department, or with the mode of conducting its business, in fact all such instructions as are of a permanent character are communicated by printed Circulars only.

## DEPARTMENTAL GAZETTE PUBLISHED IN CALCUTTA.

206. The form and arrangement of this have been greatly improved, and efforts have been made to render it as useful to merchants as possible within the limits contemplated in its issue.

207. From the 7th July 1860 the state of the weather at 12 hours at the 26 Stations noted in the margin has been reported daily in this *Gazette*, in addition to the Reports which it had been previously the custom to publish of the state of the weather at Calcutta and at the Signal Offices at Saugor Island, Kedgeree and Diamond Harbour on the River Hooghly.

| | |
|---|---|
| Raneegunge. | Chittagong. |
| Burhee. | Dacca. |
| Benares. | Rajmehal. |
| Futtyghur. | Nagpore. |
| Lucknow. | Hyderabad (Deccan). |
| Agra. | Kurrachee. |
| Meerut. | Bombay. |
| Nynee Tal. | Indore. |
| Umballa. | Goa. |
| Simla. | Bellary. |
| Lahore. | Madras. |
| Vizagapatam. | Galle. |
| Peshawur. | Cuttack. |

(Signed) C. DOUGLAS, *Lieut.-Col.*,
*Director General of Telegraphs.*

# APPENDICES

TO THE

# ANNUAL REPORT

ON THE

# ADMINISTRATION OF THE ELECTRIC TELEGRAPH,

FOR THE YEAR 1860-61.

# APPENDIX A.

## NOTICE.

A SUB-MARINE Telegraph Cable having been laid between the Ports of Akyab and Kyouk Phyoo, the attention of Commanders of Vessels, anchoring in its neighbourhood, is requested to the following instructions prepared by Captain Burbank of Her Majesty's Bengal Steamer *Fire Queen*:—

### INSTRUCTIONS.

Vessels proceeding in or out of the Kyouk Phyoo Harbour should on no account anchor to the Westward of the Reliance Buoy for the following reasons:—

1*st*.—The legitimate passage is to the Eastward of the Buoy.

2*nd*.—The Sub-marine Telegraph Cable is laid from Circuit House, or Flag Staff Point, along the Western side of the Channel, and when the Pagoda Rock bears N. E., Non-degree N. by E. $\frac{3}{4}$ E., Reef Island N. $\frac{1}{4}$ W., Saddle Island S. W. $\frac{1}{2}$ S., Flag Staff Point S. E. $\frac{3}{4}$ E., there is a large bend in the Cable to the Eastward; consequently all Vessels should be prevented, for the safety of the Cable, from anchoring with the above bearings on.

Vessels anchoring with the Red Buoy on with Flag Staff Point will always clear the Cable, provided the Pagoda Rock is not brought to bear to the Eastward of N. E. by N.; but they should on no account bring Flag Staff Point open to the Southward of the Red Buoy.

Vessels anchoring to the N. W. of the Pagoda Rock will always clear the Cable by keeping Flag Staff Point well open to the Eastward of Red Buoy as far as it can be seen. Vessels anchoring off Pagoda Rock should endeavour to anchor as near to the Rock as possible.

Vessels running between the Island of Penny Kyong and Angrey Kyong, having cause to anchor, should border a little on the latter Island, for the Cable is laid down along the centre Channel approaching Penny Kyong gradually for about six miles from entrance, when it is brought ashore.

(Signed) C. DOUGLAS, *Major*,
*Offg. Director General of Telegraphs in India.*

# APPENDIX B.

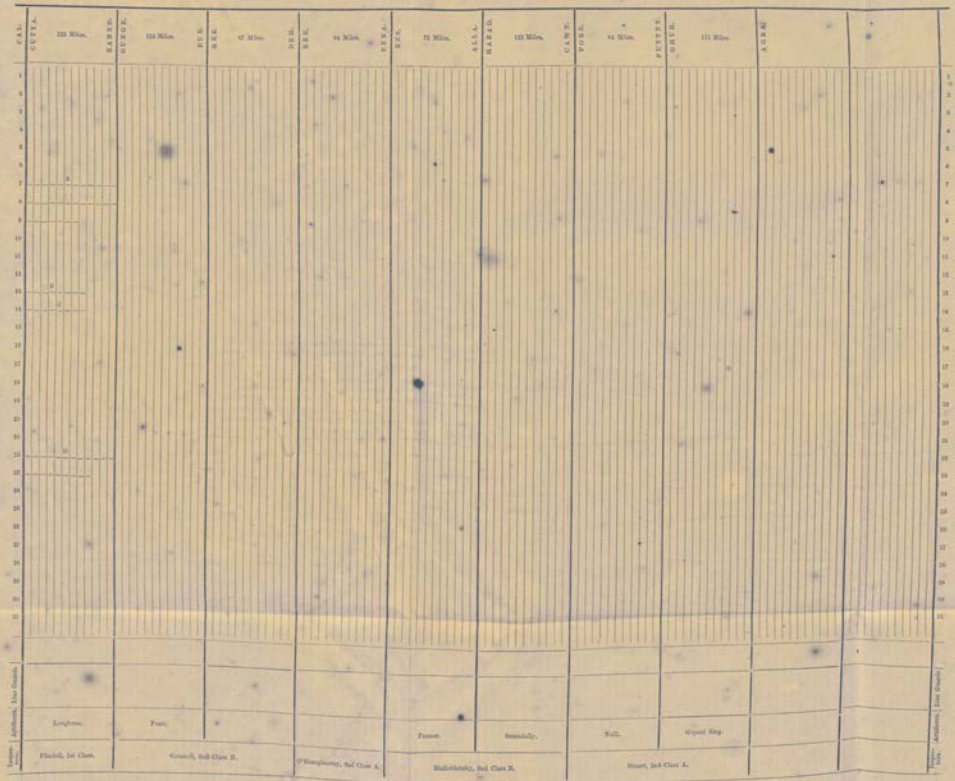
*Return shewing the number of Interruptions, their average and aggregate duration in each Circle for the year* 1860-61.

| | Bengal. | Punjab. | Bombay. | East Coast. | Central India. | Madras. | Indore. | Scinde. | Dacca. | Pegu. | S. E. Coast. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of miles comprised in each Circle .. .. .. .. | 1,749 | 1,563 | 1,224 | 1,153 | 1,275 | 1,122 | 735 | 784 | 619 | 538 | 242 |
| Total number of Interruptions in all parts of the Circle during the year .. .. .. .. .. | 166½ | 161½ | 109 | 129½ | 112½ | 57 | 59½ | 88⅓ | 64½ | 45 | 23 |
| *N. B.*—Imperfect communication is counted as =½ an Interruption. | | | | | | | | | | | |
| Aggregate duration of the above Interruptions .. .. | 2,913 | 4,251 | 3,470 | 2,385 | 3,174 | 1,220 | 624 | 2,179 | 1,752 | 3,818 | 787 |
| (Duration given in hours.) | | | | | | | | | | | |
| Proportion of the number of Interruptions to the mileage of the Circle .. .. .. .. .. | 9.45 | 10.42 | 8.90 | 11.26 | 8.82 | 5.06 | 8 | 11.42 | 10.32 | 8.19 | 9.60 |
| (100 miles being taken as the unit of mileage.) | | | | | | | | | | | |
| Average duration of each Interruption.. .. ... | 17 | 26 | 32 | 18 | 28 | 21 | 10 | 24 | 27 | 84 | 31 |

PRIMARY LINES No. 12

*Interception Report of the Bengal and North-Western Line for the month of April* 1861.

NAMES OF STATIONS, MILEAGE BETWEEN THEM, AND NAMES OF LINE ESTABLISHMENT.




A.—A piece of fine copper wire was found connecting the Wire and the Patta Iron, which caused a strong contact and thereby intercepted direct communication on the main line.

B.—The N. W. line fell on an Incubator and was in contact with the Patta Iron near Mugra.

C.—Interception caused by the breaking of the line at two different places.

D.—Interception caused by the line being on the ground.

*N. B.*—Each Section of line is divided into 12 spaces, each space representing 2 hours of time.
Interceptions are marked by a black line extending over the time of their duration.
Imperfect communication is noted by dotted lines, and when communication is perfect, the spaces are left blank.

EXEMPLES.

1. An Interception occurred at 6 hour on the 7th and lasted till 14 hour of the 8th, Cawn Poor A.
2. Interception occured at 6 hour on the 15th and lasted till 16 hour of 2nd Sett, Cawn Poor B.

# APPENDIX D.

*Classified List of Telegraph Offices under the Indian Government.*

—The number of Messages and Cash Collections are exclusive of those on Departmental Service.
The names of Offices only occasionally open are given in italics.

| | Names of Offices. | In what Circle. | Whether Government property or rented. | Monthly Rent. | Whether self-supporting or unprofitable. | Number of Messages sent in the month of April 1861. | Value. |
|---|---|---|---|---|---|---|---|
| | | | | Rupees. | | | Rs. As. P. |
| 1. | Ackberpore ... | Indore ... | G. P. | ... | Unprofitable ... | 14 | 27 13 0 |
| | Agra ... | Bengal ... | G. P. | ... | Self-supporting | 218 | 706 3 6 |
| | Ahmedabad ... | Bombay ... | R. | 40 | Ditto ... | 512 | 1,040 3 6 |
| | Ahmednuggur ... | Ditto ... | R. | 50 | Unprofitable ... | 77 | 145 13 6 |
| 5. | Akyab ... | Dacca ... | R. | 40 | Self-supporting | 191 | 614 10 9 |
| | Allahabad ... | Bengal ... | R. | 150 | Ditto ... | 398 | 802 3 0 |
| | Allygur ... | Punjab & Rohilcund | R. | 50 | Unprofitable ... | 42 | 78 8 0 |
| | Atchsepore ... | Bengal ... | R. | 40 | Ditto ... | 1 | 0 14 0 |
| | Attock ... | Punjab & Rohilcund | G. P. | ... | Ditto ... | 28 | 78 5 0 |
| 10. | Balasore ... | East Coast ... | G. P. | ... | Ditto ... | 17 | 37 4 0 |
| | Bangalore ... | Madras ... | R. | 110 | Self-supporting | 302 | 479 11 0 |
| | Bareilly ... | Punjab & Rohilcund | R. | 50 | Unprofitable ... | 103 | 144 4 0 |
| | Baroda ... | Bombay ... | R. | 50 | Self-supporting | 193 | 359 2 0 |
| | Barrackpore ... | Bengal ... | R. | 55 | Unprofitable ... | 86 | 96 14 6 |
| 15. | Belgaum ... | Bombay ... | R. | 50 | Self-supporting | 99 | 160 6 6 |
| | Bellary ... | Madras ... | R. | 50 | Ditto ... | 136 | 306 13 6 |
| | Benares ... | Bengal ... | R. | 50 | Ditto ... | 252 | 491 2 6 |
| | Beora ... | Indore ... | G. P. | ... | Unprofitable ... | 9 | 15 9 0 |
| | Berhampore ... | East Coast ... | R. | 50 | Self-supporting | 127 | 341 5 0 |
| 20. | Bezwarrah ... | Ditto ... | G. P. | ... | Unprofitable ... | 35 | 35 8 0 |
| | Bimlipatam ... | Ditto ... | R. | 25 | Self-supporting | 146 | 208 14 6 |
| | Bombay ... | Bombay ... | R. | 450 | Ditto ... | 4,156 | 11,967 11 0 |
| | Broach ... | Ditto ... | R. | 30 | Ditto ... | 288 | 515 12 6 |
| | Buddeena ... | Scinde ... | G. P. | ... | Unprofitable ... | 6 | 9 11 0 |
| 25. | Bulsar ... | Bombay ... | R. | 30 | Ditto ... | 44 | 70 11 0 |
| | Burdwan ... | Bengal ... | R. | 55 | Ditto ... | 13 | 35 14 0 |
| | Burhee ... | Ditto ... | G. P. | ... | Ditto ... | 32 | 58 4 0 |
| | Calcutta ... | Ditto ... | R. | 500 | Self-supporting | 3,144 | 15,637 3 3 |
| | Calicut ... | Madras ... | R. | 45 | Ditto ... | 295 | 639 14 0 |
| 30. | Calingapatam ... | East Coast ... | R. | 15 | Unprofitable ... | 81 | 66 5 6 |

| Names of Offices. | In what Circle. | Whether Government property or rented. | Monthly Rent. | Whether self-supporting or unprofitable | Number of Messages sent in the month of April 1861. | Value. |
|---|---|---|---|---|---|---|
| | | | Rupees. | | | Rs. As. P. |
| Cananore ... | Madras ... | R. | 50 | Self-supporting | 205 | 424 6 6 |
| Cawnpore ... | Bengal ... | R. | 70 | Ditto ... | 260 | 504 7 6 |
| Chanda ... | Central India ... | R. | 15 | Unprofitable ... | 6 | 12 5 0 |
| Chicacole ... | East Coast ... | R. | 20 | Self-supporting | 41 | 174 7 0 |
| 35. Chinnoor ... | Central India ... | G. P. | ... | Unprofitable ... | 19 | 29 1 6 |
| Chittagong ... | Dacca ... | R. | 80 | Ditto ... | 54 | 125 2 0 |
| Cochin ... | Madras ... | R. | 30 | Self-supporting | 410 | 1,125 7 0 |
| Coconada ... | East Coast ... | R. | 40 | Ditto ... | 418 | 692 0 6 |
| Commillah ... | Dacca ... | R. | 20 | Unprofitable ... | 41 | 73 2 6 |
| 40. Cuttack ... | East Coast ... | R. | 80 | Ditto ... | 53 | 95 5 0 |
| Dacca ... | Dacca ... | R. | 64 | Ditto ... | 41 | 25 2 0 |
| *Dapooree* ... | Bombay ... | G. P. | ... | Ditto ... | 0 | 0 0 0 |
| Deesa ... | Ditto ... | R. | 35 | Self-supporting | 73 | 156 6 0 |
| Dehree ... | Bengal ... | G. P. | ... | Unprofitable ... | 38 | 65 3 0 |
| 45. Delhi ... | Punjab & Rohilcund | R. | 22 | Self-supporting | 219 | 524 3 0 |
| Dera Ghazeekhan ... | Ditto ... | G. P. | ... | Unprofitable ... | 11 | 15 14 0 |
| Dera Ishmaelkhan ... | Ditto ... | R. | 20 | Ditto ... | 49 | 130 0 0 |
| Dhoolia ... | Indore ... | R. | 15 | Ditto ... | 43 | 82 4 0 |
| Dharwar ... | Bombay ... | G. P. | ... | Ditto ... | 36 | 62 6 0 |
| 50. Diamond Harbour ... | Bengal ... | G. P. | ... | Ditto ... | 21 | 9 0 6 |
| Dowlaishwaram ... | East Coast ... | R. | 60 | Self-supporting | 91 | 150 10 6 |
| *Furreedpore* ... | Dacca ... | G. P. | ... | Unprofitable ... | 6 | 10 5 0 |
| Futtyghur ... | Bengal ... | G. P. | ... | Self-supporting | 77 | 199 9 0 |
| Fyzabad ... | Ditto ... | G. P. | ... | Unprofitable ... | 44 | 96 11 0 |
| 55. Goa ... | Bombay ... | R. | 26 | Ditto ... | 63 | 104 0 6 |
| *Gudduck* ... | Ditto ... | G. P. | ... | Ditto ... | 0 | 0 0 0 |
| *Guindy* ... | Madras ... | G. P. | ... | Ditto ... | 0 | 0 0 0 |
| Gwalior ... | Indore ... | G P. | ... | Self-supporting | 113 | 266 0 0 |
| Henzadah ... | Pegu ... | G. P. | ... | Unprofitable ... | 29 | 43 4 0 |
| 60. Hooghly Point ... | Bengal ... | G. P. | ... | Ditto ... | 4 | 7 6 0 |
| Hyderabad, Deccan ... | Central India ... | R. | 140 | Self-supporting | 436 | 1,155 12 0 |
| Hyderabad, Scinde ... | Scinde ... | R. | 50 | Unprofitable ... | 59 | 128 5 0 |
| Indore ... | Indore ... | R. | 80 | Self-supporting | 796 | 2,045 11 0 |

| | Names of Offices. | In what Circle. | Whether Government property or rented. | Monthly Rent. | Whether self-supporting or unprofitable. | Number of Messages sent in the month of April 1861. | Value. |
|---|---|---|---|---|---|---|---|
| | | | | Rupees. | | | Rs. As. P. |
| | Jacobabad ... | Scinde ... | G. P. | ... | Unprofitable ... | 15 | 61 11 0 |
| 65. | Jellasore ... | East Coast ... | G. P. | ... | Ditto ... | 1 | 3 8 0 |
| | Jessore ... | Dacca ... | R. | 25 | Ditto ... | 18 | 26 1 0 |
| | Jubbulpore ... | Central India ... | R. | 86 | Ditto ... | 53 | 141 0 0 |
| | Jullunder ... | Punjab & Rohilcund | R. | 30 | Ditto ... | 62 | 115 15 0 |
| | Karrical ... | Madras ... | R. | 20 | Ditto ... | 61 | 89 5 0 |
| 70. | Kedgeree ... | Bengal ... | G. P | ... | Ditto ... | 22 | 40 4 0 |
| | Kolapore ,, | Bombay ... | G. P. | ... | Self-supporting | 75 | 308 14 0 |
| | Kookrahatee ... | Bengal ... | G. P. | ... | Unprofitable ... | 2 | 1 9 6 |
| | Kotree ... | Scinde ... | R. | 35 | Ditto ... | 64 | 110 6 0 |
| | Kurnool ... | Central India ... | R. | 70 | Ditto ... | 43 | 74 7 6 |
| 75. | Kurrachee ... | Scinde ... | G. P. | ... | Self-supporting | 397 | 1,210 11 0 |
| | Kusmore ... | Ditto ... | G. P. | ... | Unprofitable ... | 7 | 10 7 0 |
| | Kyouk Phyoo ... | Dacca ... | G. P. | ... | Ditto ... | 43 | 68 0 0 |
| | Lahore ... | Punjab & Rohilcund | G. P. | ... | Self-supporting | 255 | 987 8 0 |
| | Lucknow ... | Bengal ... | R. | 80 | Ditto ... | 221 | 485 3 6 |
| 80. | Madras ... | Madras ... | R. | 266 | Ditto ... | 1,512 | 3,887 13 0 |
| | *Mahableshwar* ... | Bombay ... | G. P. | ... | Ditto ... | 298 | 833 3 0 |
| | *Malabar Point* ... | Ditto ... | G. P. | ... | Unprofitable ... | ... | 0 0 0 |
| | Maligaum ... | Indore ... | G. P. | ... | Ditto ... | 24 | 45 13 0 |
| | *Matheran* ... | Bombay ... | G. P. | ... | Ditto ... | ... | 0 0 0 |
| 85. | Meerut ... | Punjab & Rohilcund | G. P. | ... | Self-supporting | 198 | 442 2 0 |
| | Menghee ... | Pegu ... | G. P. | ... | Unprofitable ... | 43 | 58 10 6 |
| | Mercara ... | Madras ... | R. | 30 | Self-supporting | 81 | 205 15 6 |
| | Midnapore ... | East Coast ... | R. | 40 | Unprofitable ... | 7 | 13 13 0 |
| | Mirzapore ... | Central India ... | G. P. | ... | Self-supporting | 150 | 284 2 6 |
| 90. | Monghyr ... | Bengal ... | R. | 45 | Unprofitable ... | 59 | 97 7 0 |
| | Mooltan ... | Punjab & Rohilcund | R. | 67 | Ditto ... | 54 | 126 7 0 |
| | Moradabad ... | Ditto ... | R. | 50 | Ditto ... | 55 | 100 3 0 |
| | Mount St. Thomas ... | Madras ... | R. | 25 | Ditto ... | 23 | 29 13 0 |
| | Mud Point ... | Bengal ... | G. P. | ... | Ditto ... | 1 | 1 0 0 |
| 95. | Murree ... | Punjab & Rohilcund | R. | Rent paid by Punjab Govt. | Self-supporting (for June 1860) | 317 | 732 15 0 |
| | Masulipatam ... | East Coast ... | R. | 20 | Self-supporting | 146 | 237 15 6 |

| | Names of Offices. | In what Circle. | Whether Government property or rented. | Monthly Rent. | Whether self-supporting or unprofitable. | Number of Messages sent in the month of April 1861. | Value. |
|---|---|---|---|---|---|---|---|
| | | | | Rupees | | | Rs. As P. |
| | Mysore ... | Madras ... | G. P. | ... | Self-supporting | 106 | 154 4 0 |
| | Nagpore ... | Central India ... | G. P. | ... | Ditto ... | 127 | 314 6 0 |
| | Nassick ... | Indore ... | R. | 30 | Ditto ... | 88 | 149 13 0 |
| 100. | Negapatam ... | Madras ... | R. | 60 | Ditto ... | 149 | 173 15 6 |
| | Nellore ... | East Coast ... | R. | 45 | Unprofitable ... | 42 | 70 7 0 |
| | Nuggurparkur ... | Scinde ... | G. P. | ... | Ditto ... | 11 | 26 6 0 |
| | Nynee Tal ... | Punjab & Rohilcund | R. | 600 for the season | Self-supporting | 244 | 565 6 0 |
| | Ongool ... | East Coast ... | R. | 20 | Unprofitable ... | 19 | 24 4 0 |
| 105. | Ootacamund ... | Madras ... | R. | 60 | Self-supporting | 284 | 541 13 0 |
| | Padeng ... | Pegu ... | G. P. | ... | Unprofitable ... | 15 | 31 14 0 |
| | *Parrell* ... | Bombay ... | G. P. | ... | Ditto ... | 24 | 45 8 6 |
| | Patna ... | Bengal ... | R. | 50 | Self-supporting | 143 | 268 5 0 |
| | Panmben ... | South East Coast ... | G. P. | ... | Unprofitable ... | 45 | 91 8 0 |
| 110. | Pegu ... | Pegu ... | G. P. | ... | Ditto ... | 14 | 40 2 0 |
| | Peshawur ... | Punjab & Rohilcund | G. P. | ... | Self-supporting | 69 | 183 14 0 |
| | Pondicherry ... | Madras ... | R. | 45 | Ditto ... | 327 | 668 7 6 |
| | Poonah ... | Bombay ... | R. | 80 | Ditto ... | 273 | 500 4 6 |
| | Prome ... | Pegu ... | G. P. | ... | Ditto ... | 107 | 165 6 6 |
| 115. | Puttoo Cottah ... | South-East Coast ... | G. P. | ... | Unprofitable ... | 25 | 64 6 0 |
| | Rajmehal ... | Bengal ... | R. | 40 | Ditto ... | 46 | 88 15 6 |
| | Rajunpore ... | Punjab & Rohilcund | G. P. | ... | Ditto ... | 6 | 6 6 0 |
| | Ramoo ... | Dacca ... | G. P. | ... | Ditto ... | 4 | 5 4 0 |
| | Raneegunge ... | Bengal ... | G. P. | ... | Ditto ... | 65 | 117 13 6 |
| 120. | Rangoon ... | Pegu ... | G. P. | ... | Self-supporting | 318 | 712 4 6 |
| | Rawul Pindee ... | Punjab & Rohilcund | G. P. | ... | Ditto ... | 106 | 346 11 0 |
| | Rewah ... | Central India ... | R. | 20 | Unprofitable ... | 20 | 53 9 0 |
| | Sattarah ... | Bombay ... | R. | 70 | Ditto ... | 61 | 66 0 6 |
| | Saugor Island ... | Bengal ... | G. P. | ... | Ditto ... | 1 | 0 10 6 |
| 125. | Sawunt Warree ... | Bombay ... | G. P. | ... | Ditto ... | 2 | 2 0 0 |
| | Seepree ... | Indore ... | G. P. | ... | Ditto ... | 20 | 35 3 0 |
| | *Seerah* ... | Madras ... | R. | 20 | Ditto ... | 2 | 2 13 0 |
| | Seonee ... | Central India ... | R. | 40 | Ditto ... | 7 | 18 2 0 |
| | Shajehanpore ... | Punjab & Rohilcund | R. | 50 | Ditto ... | 41 | 53 10 0 |

| Names of Offices. | In what Circle. | Whether Government property or rented. | Monthly Rent. | Whether self-supporting or unprofitable. | Number of Messages sent in the month of April 1861. | Value. |
|---|---|---|---|---|---|---|
| | | | Rupees. | | | Rs. As. P. |
| 130. Shikarpore ... | Scinde ... | R. | 20 | Unprofitable ... | 24 | 50 5 0 |
| Shoaygheen ... | Pegu ... | G. P. | ... | Ditto ... | 66 | 115 15 0 |
| Simla ... | Punjab & Rohilcund | R. | 75 | Self-supporting | 143 | 368 0 0 |
| Sukkur ... | Scinde ... | R. | 15 | Unprofitable ... | 39 | 67 4 0 |
| Surat ... | Bombay ... | R. | 80 | Self-supporting | 487 | 771 2 0 |
| 135. Tarcosha ... | Scinde ... | G. P. | ... | Unprofitable ... | 9 | 22 3 0 |
| Thyetmyo ... | Pegu ... | G. P. | ... | Self-supporting | 102 | 155 10 0 |
| Tounghoo ... | Ditto ... | G. P. | ... | Ditto ... | 91 | 180 0 0 |
| Tuticorin ... | South East Coast... | G. P. | ... | Ditto ... | 173 | 440 7 6 |
| Umballa ... | Punjab & Rohilcund | R. | 80 | Ditto ... | 148 | 334 10 6 |
| 140. Umritsur ... | Ditto ... | R. | 30 | Ditto ... | 72 | 177 0 0 |
| Vellore ... | Madras ... | R. | 17 | Unprofitable ... | 39 | 57 10 0 |
| Vingorla ... | Bombay ... | R. | 10 | Ditto ... | 93 | 122 0 6 |
| Vizagapatam ... | East Coast ... | R. | 70 | Self-supporting | 216 | 305 5 6 |
| Vizianagram ... | Ditto ... | R. | 21 | Unprofitable ... | 14 | 84 4 8 |
| 145. Warrungul ... | Central India ... | R. | 10 | Ditto ... | 2 | 2 0 0 |

# APPENDIX E.

NOTICE, DATED 26TH JULY 1861.

THE Offices of the River Lines between Calcutta and Saugor Island have been prohibited from noticing in their Telegraph Reports any vessel which refuses to show its number, or the Steamer which may have such vessel in tow.

MEMORANDUM No. 1019, DATED 27TH JULY 1861.

To H. J. WALTON, Esquire, Officiating Deputy Superintendent of Telegraphs, Bengal.

IN reference to the order of yesterday's date, which prohibited reports by River Offices of vessels which refused to give number or name, it is directed that such order does not extend to the case of the China Mail Steamer.

(Signed) C. DOUGLAS, *Lieut.-Colonel,*
*Offg. Director Genl. of Tels. in India.*

From H. J. WALTON, Esquire, Officiating Deputy Superintendent of Government Telegraphs, Bengal, to Lieutenant-Colonel C. DOUGLAS, Officiating Director General of Telegraphs in India,—No. 701, dated 23rd July 1861.

I HAVE the honor to recall your attention to the fact that vessels passing up and down the River Hooghly still persistently neglect to show their numbers. The Pilot on boarding a vessel takes entire charge of her from the Master, and, as he is supposed to be well acquainted with the Marine Rules, I now beg to bring to your notice the gross neglect by the Pilot in charge of the hired Transport *Marseilles* with a view to the attention of the proper Authorities being again called to this subject.

Rule No. 23 for the guidance of running Pilots is as follows:—"Vessel's number to be hoisted on passing all Telegraph Stations."

Rule No. 24 reads thus:—"Pilots are directed to use every precaution in their power in order that the signal number of the vessels of which they may be in pilotage charge is accurately and distinctly displayed on arrival within signal distance of the several Stations on the River, and kept flying until answered. Pilots will be held responsible (under pain of punishment) for any disregard of this order."

A glance at the Shipping Reports will prove that these orders are almost ignored by the Pilots in charge of vessels, and the number of vessels which do not show their numbers seems to be on the increase, in spite of the constant complaints of this Department and the late correspondence of the Chamber of Commerce with the Bengal Government on the subject.

As this carelessness on the part of the Pilots goes far towards nullifying the use of the Telegraph along the River, which was established solely for the purpose of reporting the movements of the Shipping thereon, and which reports are sent free, I would propose that those vessels only which show their numbers should be reported, as it is useless

to occupy the line and take the trouble to print and circulate information about an *unknown* Ship.

Regarding the non-observance of the Marine Rules by the Ship *Marseilles*, I must refer you to the accompanying reports. It will be seen from the Report of the 19th instant that the *Marseilles*, although she had troops on board, did not show her number on passing Atcheepore; but the Steamer seems to have been recognized, as they are reported, "a Ship in tow of *Phœnix* Steam Vessel at 12-40." Again at Hooghly Point on the 20th, they are reported as "a Ship and a Steam Vessel anchored off Nynan at 12-55," she then and there went aground; and had she gone to the bottom, it would have been hours before we could have discovered what vessel it was had foundered, as it was, all the troops had to be landed, and the women, children and convicts were put on board the *Phœnix*. They did not show the colours when aground, and so persistent were they that, after the vessel floated and anchored off Nynan, she is reported as "*the Ship* which anchored off Nynan at 12-55 went on shore and floated on 13-20." Rule 23 already referred to particularly refers to vessels with troops on board, and further says that all such vessels are to fly a jack at the Mizen; this order was likewise unheeded.

Summary of 19th July.
Do. 20th July.
Do. 22nd July.

An excuse that a proper set of Marryatt's Code of Signals was not on board will not stand, as on the 22nd she for the first time gave her name, as will be seen under the heading "up" Hooghly Point—"*Marseilles* in tow of *Phœnix* Steam Vessel from off Nynan at 13-15."

As this is a case in which so many lives were endangered, and some of which might have been lost, I trust that the subject may receive the consideration its importance entitles it to.

No. 1533, dated the 14th September 1861.

FORWARDED to the Officiating Secretary to the Government of India, Marine Department, with a request that he will be so good as to take such steps as he may consider the case to require.

(Signed) C. DOUGLAS, *Lieut.-Colonel,*
*Offg. Director Genl. of Tels. in India.*

From Captain J. G. REDDIE, Officiating Secretary to the Government of India, to Lieutenant-Colonel C. DOUGLAS, Officiating Director General of Telegraphs in India,—No. 110, dated the 3rd October 1861.

I AM directed to acknowledge the receipt of your letter No. 1533, dated 14th instant, and enclosures, reporting the negligence of Pilots in not showing the number of vessels and the inconvenience thereby occasioned.

In reply, I am desired to state that the Master Attendant has been called upon to make an enquiry as to the complaint urged against vessels not showing their number, and stringent orders will be issued to enforce the observance of the rule by all vessels having communication with the Port.

With special reference to the case of the *Marseilles*, copy of a letter from the Pilot in charge is herewith forwarded, in which it is stated that the Jack was hoisted at the Mizen Mast head in Garden Reach, and never hauled down, and the number shown when a little below Budge Budge at 12-30, and was flying at 3 P. M., but was then hauled down in order to signalize the Steamer after the vessel floated off Fultah Point. The weather at the time was thick and rainy, and such as to render the signals indistinguishable and doubtless, this cause may explain the statement made by the Officiating Deputy Superintendent of Government Telegraphs, that neither the number of the vessel was shown, nor the Jack at the Mizen Mast hoisted.

From Master Pilot F. K. DUNBAR, to Captain THOMAS HILL, Officiating Master Attendant,—Dated the 27th September 1861.

IN answer to letter No. 701 in reference to the Ship *Marseilles* not having shown her number whilst proceeding down under my pilotage charge, I beg to state that the Jack was hoisted at the Mizen Mast head in Garden Reach and never hauled down; and the number when a little below Budge Budge, when we grounded on Fultah Point (and not anchored off Nynan, as stated in letter No. 701 at 12-30) was still flying at 3 P. M. After we floated the number was hauled down to signalize the Steamer, but was hoisted again in the afternoon and kept flying until dark. Captain Morley of the *Marseilles* remonstrated with me about keeping the flags up so long, as he said I was wearing them out without any purpose, as he was sure they could not make them out at Hooghly Point, the weather was so thick and rainy. For the correctness of this statement Mr. Vardy, who was my leadsman, can avouch. Trusting this will prove satisfactory.

From Messrs. GORDON, STUART AND COMPANY, Secretary to the Calcutta Steam Tug Association Limited, to Major C. DOUGLAS, Officiating Director General of Electric Telegraphs in India,—Dated 26th July 1861.

WE beg to draw your attention to a notice issued in to-day's No. 2 Report, which, if acted on, will tend to prejudice the interests of this Company most seriously.

You are probably aware that all the Tug Steamers on the river have different distinguishing flags which are shewn at each Telegraph Station, so that there has never been any difficulty in telegraphing the Steamers.

A great many of the American Ships visiting this Port have no signals, and their names are not even registered in Marryatt's Code, the same may be said of the Arab Ships coming to this Port in the cold season; consequently, if the Steamer is willing to shew the Ship's number she is towing, she is powerless to do so from the fact of the Ship having no number; and we think you will hardly wish to punish us for circumstances over which we have no control.

If our Steamers are not reported, it will be impossible for us to perform our engagements, from the fact that we shall be ignorant of their whereabouts; and we trust you will reconsider the order before it is put into force against our Steamers.

From Lieutenant-Colonel C. DOUGLAS, Officiating Director General of Telegraphs in India, to Messrs. GORDON, STUART AND COMPANY, Secretary to the Calcutta Steam Tug Association Limited,—No. 1027, dated the 29th July 1861.

REPLYING to your letter of the 26th instant, referring to a recent order affecting the Reports of Shipping in the River Hooghly, I beg to state that, in the event of a Ship visiting this Port that has not been registered in Marryatt's Code, and consequently has no number, the fact does not prevent her name being made known at the several Telegraph Offices. It is not probable that any vessel sails without the numeral flags, and with these the name is readily spelt; but even supposing there are no flags on board, the Commander or Pilot cannot be without the means of showing a written name in the usual manner on a black board over the Ship's side.

With reference to the last paragraph of your letter remarking that, if your Steamers are not reported, it will be impossible for you to perform your engagements, I have to observe that the object which Government have in view in reporting free of charge the movements of the Shipping is the information of the general public, and not the special advantage of any particular Firm. But should the present order tend to interfere with your business arrangements, the inconvenience can be removed by directing your Steamers to report arrival or departure by a bearing message from any station they may desire.

The arrangements I have suggested will, however, put it in the power of the Commanders of your Steamers to make known the name of any Ship they may be towing whether such Ship has flags or not; and if these gentlemen will take the trouble to do this, the personal inconvenience you anticipate by the issue of the order will be avoided.

From Messrs. APCAR AND COMPANY, to the Officiating Superintendent of Electric Telegraph Department,—No. 1641, dated the 24th October 1861.

THE Steam Tug *Union* belonging to us passed up Saugor at 7 A. M. on the 19th instant, as per your No. 1 issue of that day. She reached Town on the 20th with a vessel in tow, but without once even being reported in your *Gazette* after passing up Saugor.

Our arrangements for towing vessels down from Calcutta depend entirely on the movements of our Tugs down River according as they are reported in your day's issues. The Ship *Sarah Palmer* was on the above occasion waiting in town for the *Union;* and much disappointment was caused to us and to the Commander of the above vessel in consequence of the total absence of the *Union's* name in your issues of that day and of the next day also; and we feared some accident must have detained her at any distant place from a station which prevented her to telegraph up.

On making enquiries at your Office, we were, however, informed she had passed up Hooghly Point with a Ship in tow "which did not show her numbers." We infer

this must have been the reason why the *Union's* name was not also reported, or rather omitted on purpose in consequence.

Should this surmise be correct, and if you have laid rules down in your establishment not to report the names of those vessels which do not show their numbers, it is perfectly reasonable. But we submit it is hardly fair to punish the Steamer by not reporting her name also for the fault of the vessel she happens to tow at the time and over whom she has no control.

We beg, therefore, you will take this question into your consideration, and order the Steamers to be regularly reported in your *Gazette* to which we are subscribers, as in addition to disappointment it will otherwise cause us also serious loss, inasmuch as a vessel in town, waiting for our Steamer and not finding her name in the Reports may, for the sake of certainty, engage another Tug, while our Steamer will come up in the evening, and will be compelled to remain without work the following day in town.

From Lieutenant-Colonel C. DOUGLAS, Officiating Director General of Telegraphs in India, to Messrs. APCAR AND COMPANY,—No. 1965, dated the 2nd November 1861.

REPLYING to your No. 1641 of the 24th ultimo, relative to the Tug Steamer *Union* not having been reported from any of the River Line Offices in consequence of the Ship towed up not showing her numbers, I annex copy of a letter addressed to Messrs. Gordon, Stuart and Company* on a similar reference from them. It is quite within the competency of the Steamer to show the number or name of the Ship she is towing up should the vessel refuse to do so.

* *Vide* No. 1027, dated 29th July 1861.

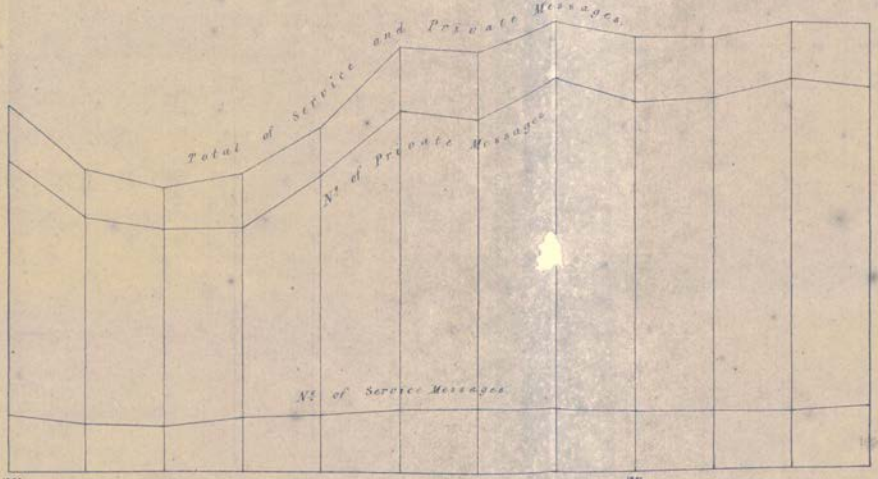
# APPENDIX F.

*Statement showing the number of Messages, Private and Service, sent from the various Circles, exclusive of those on Departmental Service, from 1st May 1860 to 30th April 1861.*

| Circles | May 1860. | | | June. | | | July. | | | August. | | | September. | | | October. | | | November. | | | December. | | | January 1861. | | | February. | | | March. | | | April. | | | Total. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. | Private. | Service. | Total. |
| Bengal | 3,156 | 615 | 3,771 | 3,236 | 745 | 3,979 | 3,305 | 464 | 3,769 | 3,395 | 339 | 3,734 | 3,180 | 740 | 3,920 | 3,253 | 726 | 3,979 | 3,366 | 655 | 4,021 | 3,721 | 1,019 | 4,740 | 3,909 | 742 | 4,651 | 4,462 | 831 | 5,293 | 4,016 | 849 | 4,865 | 4,271 | 798 | 5,069 | 42,178 | 8,773 | 50,951 |
| Bombay | 3,396 | 879 | 4,275 | 3,961 | 841 | 4,802 | 3,556 | 904 | 4,457 | 3,178 | 866 | 4,039 | 3,661 | 867 | 4,528 | 4,233 | 893 | 5,126 | 3,994 | 859 | 4,853 | 4,455 | 1,015 | 5,470 | 4,161 | 987 | 5,148 | 4,338 | 877 | 5,215 | 5,139 | 1,005 | 6,144 | 4,816 | 938 | 5,754 | 45,974 | 9,429 | 55,403 |
| Central India | 484 | 71 | 555 | 538 | 83 | 621 | 504 | 61 | 565 | 395 | 78 | 473 | 421 | 61 | 482 | 473 | 69 | 542 | 391 | 73 | 464 | 512 | 105 | 1,017 | 719 | 74 | 793 | 697 | 93 | 790 | 843 | 75 | 918 | 6,916 | 826 | 7,742 |
| Dacca | 70 | 6 | 76 | 63 | 3 | 66 | 68 | 1 | 69 | 45 | 2 | 47 | 87 | 3 | 90 | 109 | 8 | 117 | 149 | 22 | 171 | 169 | 41 | 210 | 122 | 47 | 169 | 103 | 77 | 180 | 209 | 68 | 277 | 1,219 | 363 | 1,582 |
| East Coast | 1,345 | 519 | 1,864 | 1,195 | 326 | 1,521 | 1,211 | 305 | 1,516 | 1,213 | 136 | 1,349 | 1,255 | 156 | 1,411 | 1,230 | 160 | 1,390 | 1,253 | 200 | 1,453 | 1,484 | 349 | 1,833 | 1,345 | 469 | 1,814 | 1,289 | 380 | 1,669 | 1,253 | 192 | 1,445 | 13,921 | 3,757 | 17,678 |
| Indore | 372 | 334 | 706 | 347 | 195 | 542 | 409 | 126 | 535 | 419 | 132 | 551 | 470 | 135 | 605 | 1,269 | 256 | 1,525 | 1,144 | 253 | 1,397 | 1,271 | 74 | 1,345 | 936 | 98 | 1,034 | 855 | 54 | 909 | 891 | 119 | 1,010 | 804 | 146 | 1,950 | 10,387 | 1,940 | 12,327 |
| Madras | 3,253 | 906 | 4,159 | 3,407 | 834 | 4,241 | 3,614 | 903 | 4,517 | 3,342 | 818 | 4,160 | 3,401 | 810 | 4,211 | 3,716 | 891 | 4,607 | 3,201 | 831 | 4,032 | 3,216 | 1,045 | 4,261 | 3,191 | 1,070 | 4,261 | 3,271 | 879 | 4,150 | 3,425 | 909 | 4,334 | 34,875 | 9,146 | 44,021 |
| Pegu | 348 | 237 | 585 | 284 | 228 | 512 | 379 | 233 | 612 | 403 | 166 | 569 | 337 | 141 | 478 | 617 | 192 | 809 | 454 | 215 | 669 | 555 | 181 | 736 | 484 | 193 | 677 | 449 | 210 | 659 | 443 | 209 | 652 | 4,407 | 1,915 | 6,322 |
| Punjab | 1,331 | 631 | 1,962 | 1,013 | 704 | 1,717 | 1,324 | 707 | 1,971 | 1,240 | 677 | 1,917 | 1,460 | 677 | 2,137 | 1,273 | 672 | 1,945 | 1,264 | 613 | 1,877 | 1,329 | 816 | 2,145 | 1,408 | 749 | 2,157 | 1,329 | 691 | 2,020 | 1,511 | 688 | 2,199 | 13,742 | 8,013 | 21,755 |
| Ralpin | 427 | 217 | 644 | 382 | 127 | 509 | 364 | 150 | 514 | 275 | 106 | 381 | 295 | 103 | 398 | 458 | 208 | 666 | 401 | 214 | 615 | 436 | 200 | 636 | 313 | 103 | 416 | 369 | 140 | 509 | 449 | 150 | 599 | 452 | 178 | 630 | 4,795 | 1,775 | 6,570 |
| South East Coast | 61 | 8 | 69 | 47 | 1 | 48 | 43 | 1 | 44 | 101 | 3 | 104 | 122 | 20 | 142 | 105 | 3 | 108 | 153 | 3 | 156 | 168 | 23 | 191 | 125 | 16 | 141 | 264 | 42 | 306 | 279 | 35 | 314 | 1,521 | 197 | 1,718 |
| | 13,777 | 3,971 | 16,901 | 13,513 | 3,345 | 16,858 | 13,645 | 3,354 | 16,999 | 13,077 | 2,749 | 15,827 | 15,341 | 3,467 | 17,808 | 16,836 | 4,221 | 21,057 | 16,311 | 4,203 | 21,040 | 20,218 | 4,317 | 24,535 | 18,832 | 4,324 | 23,156 | 19,202 | 4,509 | 23,711 | 20,463 | 4,809 | 25,272 | 19,564 | 4,559 | 24,123 | 205,126 | 45,489 | 250,615 |

# APPENDIX G.

**DIAGRAM** exhibiting the fluctuation of messages sent along the lines of the Govt. Tel: Dept. during each Month of the Official Year 1860-61.




The vertical ordinates represent the Nos of Messages in each Month.

Scale 5000 Messages per inch.

*Statement showing the Amount received for Private Messages at the Telegraph Offices in*

DIX H.

*India during the Years 1859-60 and 1860-61, and the increases and decreases in each Circle.*

| Madras. | | | | Peru. | | | | Punjab. | | | | Sindh. | | | | Seven East Coast and Inland States Circle. | | | | Total of | | Total | | Loss | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | Increase. | Decrease. |
| Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. |
| 4,79,000 0 0 | 5,00,000 0 0 | 21,000 0 0 | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | 117 4 0 | 2,00,000 0 0 | 1,98,000 0 0 | — — | 2,000 0 0 | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 10,79,000 0 0 | 10,98,000 0 0 | 19,000 0 0 | — — | 1,900 0 0 | — — |
| 2,02,16 0 | 2,04,12 12 | 1,95 12 0 | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 5,02,16 0 0 | 5,04,12 12 | 1,95 12 0 | — — | 195 12 0 | — — |
| 2,07,32 0 | 2,08,2 7 | 1,00 7 0 | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 5,07,32 0 0 | 5,08,2 7 | 1,00 7 0 | — — | 100 7 0 | — — |
| 2,00,32 0 | 2,00,2 0 0 | 1,00 0 0 | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 5,00,32 0 0 | 5,00,2 0 0 | 1,00 0 0 | — — | 100 0 0 | — — |
| 2,00,0 0 0 | 2,00,1 0 0 | — — | 100 0 0 | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 1,00,000 0 0 | 1,00,000 0 0 | — — | — — | 5,00,0 0 0 | 5,00,1 0 0 | 1,00 0 0 | — — | 100 0 0 | — — |
| 2,00,0 0 0 | 2,00,1 0 0 | 1,00 0 0 | — —

*Statement shewing the Amount received for Service Messages at the Telegraph Offices in*

| Months. | Patna. | | | | Bankipur. | | | | Central India. | | | | Surat. | | | | Rajkot. | | | | Indore. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1910-11. | 1909-10. | Increase. | Decrease. | 1910-11. | 1909-10. | Increase. | Decrease. | 1910-11. | 1909-10. | Increase. | Decrease. | 1910-11. | 1909-10. | Increase. | Decrease. | 1910-11. | 1909-10. | Increase. | Decrease. | 1910-11. | 1909-10. | Increase. | Decrease. |
| | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. |
| May ... ... ... | 2,591 3 0 | 2,591 3 0 | 1,742 12 0 | ... ... | 1,256 10 0 | 1,494 1 0 | ... ... | 271 3 0 | 474 14 0 | 408 2 0 | ... ... | 33 12 0 | ... ... | 6 7 0 | 6 7 0 | ... ... | 182 2 0 | 182 2 0 | 36 2 0 | ... ... | 861 2 0 | 727 10 0 | ... ... | 133 4 0 |
| June ... ... ... | 1,888 1 0 | 2,284 10 0 | 1,172 14 0 | ... ... | 918 10 0 | 979 6 0 | ... ... | 189 12 0 | 478 2 0 | 400 7 0 | 21 0 0 | ... ... | 4 8 0 | 314 8 0 | 314 8 0 | ... ... | 142 12 0 | 178 10 0 | ... ... | 7 10 0 | 555 12 0 | 484 14 0 | 204 12 0 | ... ... |
| July ... ... ... | 1,597 11 0 | 2,227 1 0 | 1,226 6 0 | ... ... | 704 1 0 | 452 12 0 | 189 14 0 | ... ... | 388 0 0 | 442 10 0 | ... ... | 104 2 0 | 4 0 0 | 477 14 0 | 473 14 0 | ... ... | 101 12 0 | 68 4 0 | 33 8 0 | ... ... | 371 14 0 | 703 14 0 | ... ... | 331 12 0 |
| August ... ... ... | 2,241 9 0 | 2,777 8 0 | ... ... | 535 14 0 | 1,271 7 0 | 914 12 0 | ... ... | 356 11 0 | 393 8 0 | 396 8 0 | ... ... | 3 0 0 | 4 0 0 | 424 12 0 | 420 12 0 | ... ... | 104 4 0 | 146 2 0 | 41 14 0 | ... ... | 337 1 0 | 434 10 0 | ... ... | 94 12 0 |
| September ... ... | 2,251 8 0 | 2,201 0 0 | ... ... | 50 8 0 | 1,251 8 0 | 1,179 14 0 | 71 10 0 | ... ... | 352 0 0 | 413 0 0 | ... ... | 101 12 0 | 4 0 0 | 4 14 0 | ... ... | 2 14 0 | 128 10 0 | 108 2 0 | 20 8 0 | ... ... | 142 12 0 | 104 12 0 | 40 0 0 | ... ... |
| October ... ... ... | 2,211 12 0 | 2,241 4 0 | 29 4 0 | ... ... | 1,232 4 0 | 1,230 4 0 | 2 0 0 | ... ... | 278 12 0 | 353 4 0 | ... ... | 104 4 0 | 2 8 0 | 20 8 0 | 18 0 0 | ... ... | 230 2 0 | 234 10 0 | 4 8 0 | ... ... | 248 14 0 | 197 12 0 | 102 2 0 | ... ... |
| November ... ... | 2,402 4 11 | 2,247 8 0 | 154 12 0 | ... ... | 1,241 12 0 | 1,228 8 0 | 13 4 0 | ... ... | 351 4 0 | 325 8 0 | ... ... | 24 4 0 | 2 8 0 | 20 8 0 | 18 0 0 | ... ... | 244 4 0 | 237 12 0 | 11 8 0 | ... ... | 252 12 0 | 187 12 0 | 105 12 0 | ... ... |
| December ... ... | 2,251 2 0 | 2,241 4 0 | 10 14 0 | ... ... | 1,227 8 0 | 1,174 12 0 | 61 4 0 | ... ... | 275 12 0 | 326 12 0 | 23 12 0 | ... ... | 14 1 0 | 197 8 0 | 183 4 0 | ... ... | 211 2 0 | 214 4 0 | ... ... | 10 4 0 | 218 1 0 | 210 0 0 | ... ... | 8 0 0 |
| January ... ... ... | 4,391 4 0 | 3,241 8 0 | ... ... | 1,149 12 0 | 1,228 12 0 | 1,251 0 0 | ... ... | 22 4 0 | 391 4 0 | 770 2 0 | 378 12 0 | ... ... | 12 4 0 | 272 0 0 | 26 8 0 | ... ... | 220 12 0 | 224 4 0 | 3 8 0 | ... ... | 222 4 0 | 220 8 0 | ... ... | 102 4 0 |
| February ... ... ... | 2,291 1 0 | 3,227 11 0 | ... ... | 1,236 12 0 | 1,251 0 0 | 1,230 12 0 | 20 4 0 | ... ... | 194 4 0 | 330 2 0 | ... ... | 135 14 0 | 227 4 0 | 227 4 0 | 22 12 0 | ... ... | ... ... | 222 12 0 | 222 12 0 | ... ... | 220 12 0 | 130 2 0 | ... ... | 110 12 0 |
| March ... ... ... | 2,251 14 0 | 2,201 4 0 | ... ... | 150 14 0 | 1,227 12 0 | 1,227 12 0 | ... ... | 27 4 0 | 240 14 0 | 222 12 0 | ... ... | 20 14 0 | 22 14 0 | 227 0 0 | 27 4 0 | ... ... | 220 4 0 | 228 0 0 | ... ... | 21 8 0 | 222 4 0 | 227 12 0 | 27 12 0 | ... ... |
| April ... ... ... | 2,201 4 0 | 2,201 12 0 | ... ... | 0 8 0 | 1,227 12 0 | 1,227 7 0 | 20 5 0 | ... ... | 172 0 0 | 212 4 0 | ... ... | 40 4 0 | 72 12 0 | 214 12 0 | 87 12 0 | ... ... | 222 12 0 | 222 12 0 | ... ... | 12 14 0 | 212 12 0 | 222 7 0 | ... ... | 10 11 0 |
| Total ... | 24,221 14 11 | 31,407 8 0 | 3,264 12 0 | 3,271 2 0 | 14,224 12 0 | 14,220 12 0 | 1,771 4 0 | 991 4 0 | 3,220 4 0 | 3,240 14 0 | ... ... | 201 4 0 | 227 14 0 | 2,112 12 0 | 1,727 8 0 | ... ... | 1,224 7 0 | 2,742 0 0 | 221 4 0 | 222 14 0 | 3,240 8 0 | 3,227 14 0 | 1,221 7 0 | 222 14 0 |

DIX I.

*India during the Years 1850-60 and 1860-61, and the increase and decrease in each Circle.*

| Madras | | | | Pegu. | | | | Tenasserim. | | | | Andaman. | | | | Nicobar, Sand Coast and Straits and its Centres. | | | | Total in | | Excess | | Less | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | 1859-60. | 1860-61. | Increase. | Decrease. | Increase. | Decrease. |
| Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. |
| 337 11 0 | 1,333 12 4 | 995 13 4 | — — — | 1,246 1 0 | 493 11 0 | — — — | 752 6 0 | 2,109 11 7 | 3,607 5 6 | 1,497 13 11 | — — — | 407 2 0 | 402 13 0 | — — — | 4 8 0 | — — — | 99 0 0 | 99 0 0 | — — — | 21,054 10 4 | 19,663 6 7 | 2,102 7 2 | — — — | — — — | 52 0 0 |
| 492 4 0 | 2,988 4 3 | 2,495 12 3 | — — — | 599 8 0 | 648 4 0 | 228 0 0 | — — — | 1,295 4 0 | 2,700 7 2 | 1,404 3 2 | — — — | 386 4 0 | 384 4 0 | — — — | 247 12 0 | 12 12 0 | 76 12 0 | 64 0 0 | — — — | 6,480 14 0 | 8,492 7 2 | 2,011 13 2 | — — — | — — — | — — — |
| 3,488 1 0 | 888 4 0 | — — — | 149 13 0 | 211 12 0 | 253 4 0 | 2 4 0 | — — — | 1,295 4 0 | 2,700 4 0 | 1,404 0 0 | — — — | 352 12 0 | 262 12 0 | — — — | 89 12 0 | — — — | 18 11 0 | 18 11 0 | — — — | 4,351 4 0 | 4,237 11 2 | — — — | 127 14 0 | 1,302 13 0 | — — — |
| 814 12 0 | 1,346 12 0 | 532 12 0 | — — — | 201 4 0 | 401 12 0 | 210 8 0 | — — — | 2,431 9 0 | 2,700 4 0 | 268 11 0 | — — — | 462 12 0 | 324 11 0 | — — — | 138 12 0 | — — — | 7 4 0 | 7 4 0 | — — — | 4,130 4 10 | 5,020 4 0 | 1,210 7 2 | — — — | — — — | 322 4 2 |
| 1,370 14 3 | 868 4 0 | — — — | 501 10 3 | 401 14 0 | 292 8 0 | — — — | 107 10 0 | 1,350 14 0 | 2,700 4 0 | 1,349 10 0 | — — — | 276 0 0 | 201 2 0 | — — — | 204 7 0 | 9 2 0 | 40 12 0 | 31 4 0 | — — — | 3,772 14 0 | 4,091 12 0 | 318 7 2 | — — — | — — — | 98 4 0 |
| 2,227 12 11 | 2,227 12 11 | — — — | 140 1 0 | 201 4 0 | 201 4 0 | 27 12 0 | — — — | 1,350 14 0 | 2,700 4 0 | 1,349 10 0 | — — — | 207 2 0 | 207 2 0 | — — — | 204 14 0 | 12 10 0 | 24 4 0 | 11 10 0 | — — — | 4,259 12 0 | 4,504 12 0 | 244 7 2 | — — — | 1,302 13 0 | — — — |
| 1,408 1 6 | 1,514 14 3 | 106 0 4 | — — — | 201 4 0 | 201 14 0 | — — — | 21 0 0 | 450 4 0 | 1,350 14 0 | 900 4 0 | — — — | 103 12 0 | 207 2 0 | 97 14 0 | — — — | 0 7 0 | 24 4 0 | 23 13 0 | — — — | 2,781 4 0 | 3,439 4 0 | 658 0 0 | 20 14 0 | 2,227 12 0 | — — — |
| 1,408 1 0 | 1,527 12 0 | — — — | 200 0 0 | 201 4 0 | 201 14 0 | — — — | 14 0 0 | 1,350 4 0 | 1,350 14 0 | 900 14 0 | — — — | 207 12 0 | 103 12 0 | — — — | 103 12 0 | 12 12 0 | 37 4 0 | — — — | 0 8 0 | 4,264 4 0 | 4,668 12 7 | 1,402 12 7 | 1,302 14 0 | — — — | 200 4 10 |
| 2,047 14 0 | 1,710 14 3 | — — — | 337 0 0 | 201 12 0 | 201 12 0 | — — — | 12 11 0 | 2,100 4 0 | 2,700 14 0 | — — — | 2 4 0 | 372 4 0 | 207 2 0 | — — — | 164 12 0 | 12 12 0 | 37 4 0 | — — — | 12 12 0 | 11,021 14 0 | 11,026 4 7 | 1,214 4 0 | — — — | — — — | 200 4 7 |
| 2,781 4 0 | 1,400 4 0 | — — — | 1,381 4 0 | 404 11 0 | 404 11 0 | — — — | 0 4 11 | 2,207 12 0 | 2,207 12 0 | — — — | 164 7 0 | 407 14 0 | 720 7 0 | 312 9 0 | — — — | 0 12 0 | 37 4 0 | 37 4 0 | — — — | 21,021 4 0 | 19,699 7 0 | 818 4 0 | 2,214 2 0 | — — — | 4,207 12 0 |
| 1,027 11 0 | 1,027 11 0 | — — — | 214 14 0 | 201 4 0 | 472 12 0 | 12 11 0 | — — — | 2,207 4 0 | 2,700 4 0 | — — — | 1,492 12 0 | 720 14 0 | 470 4 0 | — — — | 247 12 0 | 14 12 0 | 30 4 0 | 30 4 0 | — — — | 20,400 7 0 | 19,176 2 0 | 818 4 0 | 2,210 4 0 | — — — | 2,207 4 0 |
| 1,027 11 0 | 1,014 4 0 | — — — | 186 4 0 | 201 4 0 | 207 7 0 | — — — | 12 11 0 | 2,207 4 0 | 1,492 14 0 | — — — | 1,492 7 0 | 822 4 0 | 468 7 0 | — — — | 151 14 0 | 11 4 0 | 42 12 0 | 42 12 0 | — — — | 21,021 12 0 | 19,240 4 0 | 1,212 12 0 | — — — | — — — | 207 12 0 |
| 17,724 4 0 | 19,621 12 3 | 1,897 8 3 | 2,102 4 3 | 3,211 14 0 | 4,751 8 0 | 481 14 4 | 302 12 4 | 20,141 11 0 | 29,621 1 4 | 9,547 11 4 | 3,172 4 0 | 3,732 4 0 | 3,840 11 0 | 504 7 0 | 1,404 4 0 | 112 7 0 | 561 0 0 | 447 4 0 | 61 7 0 | 1,31,021 12 0 | 1,31,021 12 0 | 21,210 4 0 | 8,241 2 0 | 8,241 12 0 | 8,241 12 0 |

E. E.

Total Increase Rupees ... ... 94 0 0

# APPENDIX J.

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 110.

From Lieutenant-Colonel C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 1st July 1861.

IT would appear from the numerous errors which occur in repetition Messages —errors of a nature which could not occur were repetition given—that such Messages are habitually passed along the lines unrepeated.

To check this injustice to the public it is hereby directed that, in all cases when repeating a repetition Message, the sending Office shall take down in writing on the copy of the Message, from which the forward Signalling has been made, all errors shewn in the repetition.

As an example;—let us suppose that the Bombay Office has just signalled a repetition Message to Indore with which station it happens to be in direct communication. The Indore Signaller will, after the receipt of the Message, repeat it back to Bombay, and all errors in the message so repeated will be noted in the Bombay copy below the text of the Message. Such note will in no case form any portion of the Message to be telegraphed, but will merely be a memorandum on the face of the Message for reference in the Complaint Office. An example is given below.

Under such an arrangement it is evident that if the Bombay and Indore copies differ, and no note of error in repetition has been made on the former that the repetition has been neglected. In such case the ordinary fines for error will be doubled, as a punishment both for the error and for the breach of the standing order that has occasioned it.

Assistants in charge of Office are as much to blame as Signallers for errors caused by the neglect of not repeating this class of Message, as such neglect could not remain long unknown to a careful Assistant.

*Message as signalled from Bombay.*

| | | |
|---|---|---|
| FROM BOMBAY | ... ... ... | TO INDORE. |
| „ Captain Matthews | ... ... | „ Seo Gopaul Dass. |

Sell all, and do not reserve the horses. I am sending four thousand Rupees.

*Message as received at Indore.*

FROM BOMBAY ... ... ... TO INDORE.
„ Captain Matthews ... ... „ Seo Gopaul Dass.

Sell all, and do not receive the horses. I am sending fourteen thousand Rupees.

---

*Message as signalled from Bombay with repetition errors noted.*

FROM BOMBAY ... ... ... TO INDORE.
„ Captain Matthews ... ... „ Seo Gopaul Dass.
(1) (2)

Sell all, and do not reserve the horses. I am sending four thousand Rupees.

Errors ... ... ... (1) Receive; (2) fourteen.

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## GENERAL BRANCH, CIRCULAR No. 122.

From Lieutenant-Colonel C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 26th September 1861.

ALTHOUGH the orginal order, directing that the word NOT when it occurs in a Message shall invariably be repeated back by the *receiving* Signaller and re-signalled by the *sending* Signaller, has, I believe, been re-published on more than one occasion, it is found that instances of neglect of this order are still frequent; and a case has just been brought to notice in which the omission of the word NOT from an important Government Message might have been attended with serious consequences.

*Repeated.* NOT

It is now directed that whenever the word NOT occurs in a Message, the receiving Signaller will, after having it repeated in the usual manner as before described, write the word *repeated* across it, as shewn in the margin, as evidence that the rule on this point was not neglected.

In any message where this word is found, and the above precaution to avoid mistakes has not been taken, the Signaller who received the Message will be fined one Rupee in every instance.

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## GENERAL BRANCH, CIRCULAR No. 130.

From Lieutenant-Colonel C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 24th December 1861.

FROM the numerous errors in the names of persons and places that are constantly occurring, it is believed that the rule laid down in the following Circular issued by Sir W. B. O'Shaughnessy in 1859 has fallen into disuse. The Circular is therefore

republished, and Assistants are requested to be most careful that the instructions therein given are strictly followed in all Messages, whether such have been paid for at repetition price or not.

## OFFICE ORDER No. 588.

WITH reference to the numerous and discreditable mistakes which still take place in nearly all the Offices in reporting the *names* of *persons* and *places*, it is hereby directed that in future every *name* in the *address* and *body* of a Message shall be repeated back by the receiving Signaller before the Message is passed on, or sent out to the Addressee or issued as public news.

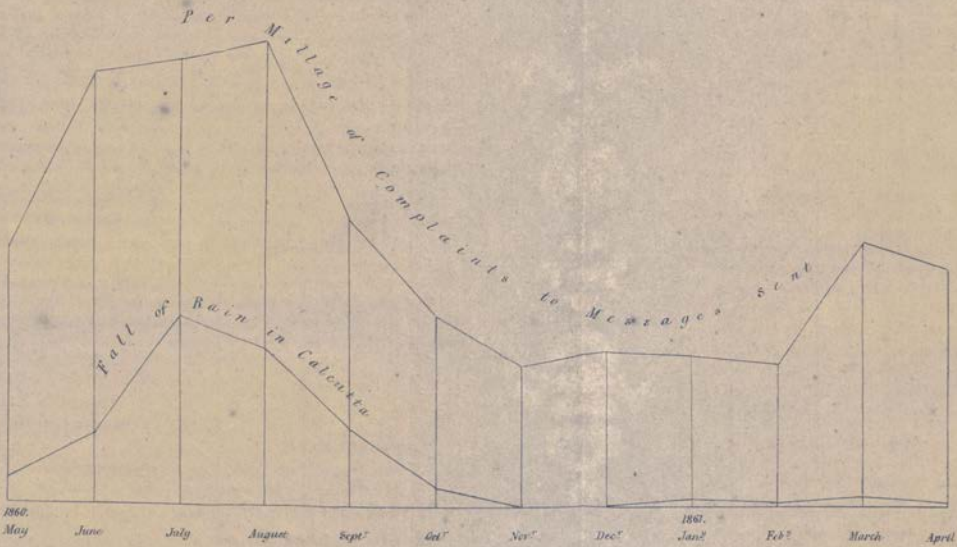
HEAD OFFICE,
*The 1st July* 1861.

W. B. O'SHAUGHNESSY,
*Supdt. Govt. Tels. in India.*

NOTE.—The above instructions are considered as applying to the case of *every* word in a Message over the correct receipt of which the context offers no check, such for instance as *Vernacular* words, or unusual commercial or technical terms as "Bottomry," "Lay days," &c., &c., and all *numbers* and *dates*.

# APPENDIX K.

**DIAGRAM** shewing the relation between the percentage of complaints and fall of Rain for each Month of the Year 1860-61.




The scale for weather is ½ of an inch for each inch of rain fall

The scale for Complaints is 1 inch for each Complaint per 1000 Messages

# APPENDIX L.

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 43.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 6th September 1860.

TOWARDS obviating the mistakes at present of frequent occurrence in giving the dates of Messages from mistakes in the use of the letters A. M. and P. M., as well as from the omission to notice the change of date at midnight, the following orders will have effect from the date on which this Circular reaches you.

The word *date* will always be understood in its full sense, that is, not as a particular day of the month, but as a particular minute and hour, as well as day of the month.

In lieu of the customary mode of reckoning the hours of the day in 2 cycles of 12 hours each, and designating them as A. M. and P. M., the day will be considered as consisting of 24 hours, commencing at midnight.

The hours will be expressed as follows :—

Midnight will be considered as belonging to the day just ended, and will be termed 24 hours, and supposing the day just ended to be the 18th, the hours of the new day will bear the designations following, viz. :—

| | Days | hrs. | mins. |
|---|---|---|---|
| 5 minutes past midnight ... ... ... ... | 19 | 0 | 5 |
| 10 minutes „ ... ... ... ... | 19 | 0 | 10 |
| 1 hour „ ... ... ... ... | 19 | 1 | 0 |
| and so on till | Days | hrs. | mins. |
| Noon, which will be called ... ... ... ... | 19 | 12 | 0 |
| 1 P. M. of the usual nomenclature will be ... ... | 19 | 13 | 0 |
| and so on till | Days | hrs. | mins. |
| 11 P. M. which will be ... ... ... ... ... | 19 | 23 | 0 |
| Midnight ... ... ... ... ... ... | 19 | 24 | 0 |

Immediately after which the 20th day of the month will be assumed to have commenced.

It is hoped that though this arrangement may not prevent the mistakes of continuing the previous day's date after midnight, it will, from the circumstance of such mistake involving the large error of 24 hours, be more easy of detection in the Complaint Office than the smaller error of 12 hours, and will prevent the error of

writing 12 h. 25 m. P. M. indifferently for 25 minutes past noon and past the midnight immediately following.

To aid in familiarizing you with this new system of reckoning the hours, a lithographed dial of the hours subsequent to 12 is enclosed, which should be pasted on the face of your Office Clock of which it should occupy the portion just within the present hour figures; provided the particulars called for by my Circular No. 27 of the 1st June have been correctly furnished.

I take this opportunity of directing that all Reports which have hitherto been furnished weekly shall henceforth be rendered quarter-monthly. The ¼ month being considered to terminate at midnight or 24 hours of the 8th, 15th, 22nd, and last day of each month.

*Extract from the Periodical "Once a Week," dated March* 1861, *Page* 273.

THE present method of noting time is to divide the twenty-four hours of the day into two equal parts, called A. M. and P. M. Some call these parts morning and afternoon; others talk of noon and night; and there are very few men (and never a woman) who can make a statement that an event will take place at a named hour of A. M or P. M., without wriggling into the sentence the expression morning or forenoon, or evening or afternoon, or noon or night.

Even Railway Officials are obliged to use an expletive before they can make themselves understood by all classes. In the time tables of Bradshaw's Guide we see trains arriving at 12 noon, showing want of confidence in 12 A. M. It is not every person who can say at once whether five minutes past twelve at night is A. M. or P. M.; and no wonder, for first of all these expressions are Latin abbreviations, and are not only not sufficiently correct or precise to give a clear idea of time to any one, but they contain the followlng anomaly. In using 12·5 A. M. to express the moment of time at the end of the fifth minute of this the first day of January 1861, the 5 is A. M. of to-day, but the 12 is P. M. of yesterday, the thirty-first of December 1860; and having used an hour of yesterday and a minute of to-day, and having placed a Latin abbreviation after them, is it any wonder that many of us are not quite up to the time of day without adding the word night to the expression?

It takes a deal of hammering and circumlocution to make a witness in Court, even of the farmer or tradesman class, give a direct answer as to time in terms of the meridies. He knows noon and night, morning and afternoon, but what can he be expected to know of the meridies without a special teaching?

To avoid these complications the following notation of time is recommended, more especially for time tables. Let the days be divided as at present into hours, but counted from one to twenty four, the short hand, as it were, making but one revolution, as in an Italian clock. Thus instead of the anomaly of 12·5 A. M. to which some have to add night, and others morning, before knowing that it means five minutes past twelve at

night, or rather morning (for of course A. M. means morning before noon, but to tell you the truth, I am not quite clear myself what it does and ought to mean). But, to begin the sentence again, 12·5 A. M. in the new notation is written 0·5; noon or 12 A. M. is written 12·0; the expression for 1·10 P. M., or 1·10 aft., is 13·10; eight o'clock in the evening is 20·0; and 12 P. M. or 12 aft., or midnight, or all three, is expressed by 24·0.

This system of notation is no great strain on the intellect. Those who can read and write, who attempt to make out a time table, and who know that fifteen pence is one shilling and threepence will understand that a train arriving at 15·45 by the table arrives at 3·45 P. M. by the clock; 15·45 carries P. M. and afternoon in the very look of it; and 23·59 does not require P. M. or night to tell us that something is to be done as near as need be to the uncomfortable hour of the middle of the night.

# APPENDIX M.

*Statement shewing the number of days in each month in which the dropping of the Time Ball failed in Calcutta and Madras in* 1859-60, *as compared with* 1860-61.

IN CALCUTTA.

| 1859-60. | | | 1860-61. | | |
|---|---|---|---|---|---|
| 1859 | September* | 1 Day. | 1860 | May | 4 Days. |
| „ | October | 0 | „ | June | 0 |
| „ | November | 0 | „ | July | 0 |
| „ | December | 1 „ | „ | August | 1 Day. |
| 1860 | January | 3 Days. | „ | September | 0 |
| „ | February | 2 „ | „ | October | 1 „ |
| „ | March | 0 | „ | November | 1 „ |
| „ | April | 1 Day. | „ | December | 0 |
| | | | 1861 | January | 0 |
| | | | „ | February | 0 |
| | | | „ | March | 0 |
| | | | „ | April | 0 |
| Total failure for 8 months | | 8 Days. | Total failures for 12 months | | 7 Days. |

* Time Ball first erected in September 1859.

*N. B.*—As evidence of the successful result of the changes in the electrical arrangements alluded to, I may here state, in anticipation of the next Report, that not a single failure occurred during the Civil year 1861.

IN MADRAS.

| 1859-60. | | 1860-61. | | |
|---|---|---|---|---|
| No record kept. | | 1860 | May | 3 Days. |
| | | „ | June | 0 |
| | | „ | July | 0 |
| | | „ | August | 0 |
| | | „ | September | 0 |
| | | „ | October | 2 „ |
| | | „ | November | 4 „ |
| | | „ | December | 4 „ |
| | | 1861 | January under repairs. | |
| | | „ | February | 1 Day. |
| | | „ | March | 0 |
| | | „ | April | 0 |
| | | Total failures for 11 months | | 14 Days. |

Extract from letter No. 36 of March 1861, from Lieutenant P. W. MITCHESON, I. N., in charge of Government Observatory, Bombay, to Captain R. MURRAY, Superintendent of Telegraphs, Western Division.

"I HAVE only been in charge here since 26th September last, the Time Ball being under repair, and the Battery not used until 1st January; but, as I have above remarked, it has only failed three times, and on each of those occasions succeeded on the second trial, viz. at 2 h. P. M. But from all I can learn it was not found possible to trust to the Battery during the monsoon, and the Ball was consequently always dropped by hand."

# APPENDIX N.

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 3.

From Major C. Douglas, Officiating Superintendent of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 13th of June 1860.

It frequently occurs that the Assistant in Charge of an Office from which alternative Lines proceed, after despatching a Message by one of the Lines, is informed of an interruption which will prevent its further progress otherwise than by post, in which case to save the delay of such a course the Message, if important, is sent by the other Line. In such a case both copies of the Message will reach the addressee, and occasionally with such an interval between them that each is considered and treated as a separate Message.

In ordinary cases such Duplicate Messages cannot be productive of any further inconvenience than the double trouble of their delivery, but in the case of Messages which are afterwards to pass through the Red Sea Company's Lines, there is a serious risk of the same Message being twice (and it may be oftener) transmitted through that Company's Lines, with of course a charge for each transmission, for the payment of which to the Red Sea Company the Indian Government is liable.

As a provision against such an occurrence, it is ordered that in all cases of the Duplicate of a Message being forwarded by the Assistant of any Office, the word "Duplicate" will head such second copy of the Message.

The Assistant in Charge of the Kurrachee Office will keep a Register of all Messages received into his Office for despatch through the Red Sea Company's Lines in the form following, and on the receipt of any Message bearing the word "Duplicate" at its head, he will at once scrutinize his Register, and destroy the duplicate if the original has been received.

Should he find no record of an original, he will then send a copy of the duplicate to the Red Sea Company's Agent, and will place another copy on a special file to be kept on the desk of the Assistant on duty or in charge, for convenience of reference and as a check against the transmission of the original should it afterwards arrive. An Index to this file will scarcely be necessary, as the number of such duplicates must always be small.

As it may occasionally happen, especially in Government Messages, that the same Message is sent to more than one addressee, particular care is to be taken that such similar Messages are not mistaken for multiple copies of one Message.

*Special Register of Messages for despatch through the Red Sea Company's Lines.*

| Current Red Sea No. | When received at Kurrachee. | | | | No. of words in body. | Address. | | When sent to Red Sea Co. | | | Duplicate or otherwise. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Month. | Day. | Hour. | Min. | | Name. | Place. | Day. | Hour. | Min. | |
| | | | | | | | | | | | |

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 4.

From Major C. Douglas, Officiating Superintendent of Telegraphs in India, to the Assistant in Charge, ———— Office,—Dated Calcutta the 14th June 1860.

Every Message signalled from your Office must have the day, hour, and minute, at which its transmission commenced, added by the Signaller transmitting it, and forming the concluding words of the Message. For brevity this will be called the Office date.

All Messages reaching your Office after the first proximo without an Office date must be brought to my notice by a daily return in the form annexed, shewing your Office monthly number of the Message so deficient, and the Telegraph Station from which it was originally despatched. This return will accompany your daily reports. When dates are given by the senders, they usually form the first words of the body of the Message but should it happen that the sender's date concludes the Message, to prevent its being mistaken for an Office date, it must be transferred to the customary place at the beginning.

Thus any date found at the end of a received Message must be assumed to be an Office date, and must accordingly be left out in the copy of such Message sent out to the addressee.

*Daily Report of Messages received, and Transit, which reached this Office without an Office date.*

——————Office, the——of——————1860.

| Office Monthly Number. | From | | To | | No of Words in body. | Whence Received. | |
|---|---|---|---|---|---|---|---|
| | Person. | Place. | Person. | Place. | | Tel. Station. | Signaller. |
| | | | | | | | |

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 30.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———————— Office,—Dated Calcutta, the 9th August 1860.

The privilege of sending Telegrams on Departmental Service without payment having been of late greatly abused, the following orders are published on the subject:

In future no Telegram shall be sent on the business of the Department otherwise than on payment.

THIS RULE IS ABSOLUTE and applies without exception to every person in the Department.

The arrangement will not come into force until the 1st of September, by which date copies of the new Message Books with Counterfoils and of Telegraph Service Bill Books will, it is hoped, have reached each Circle; but in the event of Message Books not having reached any station on the 1st September, copies of Telegraph Service Messages will be kept on ordinary paper until the arrival of Books, permits of Messages being entered therein.

Superintendents of Divisions will in like manner send in their bills and counterfoils of Message Books for examination.

As regards payment, the Officiating Director General, Superintendents of Divisions, Deputy Superintendents, or others in charge of Circles, and Assistants in charge of

Offices, will make a monthly cash payment in full of their Messages for the month, taking one receipt for the total sum paid; the form of receipt is given below. But all other persons belonging to the Department, as Assistant Deputy Superintendents and Inspectors not in charge of Circles or Offices, and Inspectors and Artificers, even when holding charge of sections of Line, will be required to pay cash for all their Messages, to avoid the inconvenience of making remittances from one part of the line to another.

Telegraph Service Message Books will not be issued to Artificers, or to Assistant Deputy Superintendents or Inspectors unless in charge of Offices. In all cases when any Officer of this class desires to send a Telegraph Service Message, the Book of the Assistant in charge of the Telegraph Office where such Officer may be stationed will be available for the purpose. The person sending the Message will in every case remove the counterfoil from the book to be forwarded with the Office Bill as a voucher to his accounts. In the event of an Officer desiring to send a Telegraph Service Message when at a distance from any Telegraph Station, the cost of the Message will be forwarded in Telegraph or Postage Stamps to the Assistant in charge of the nearest Office.

When new Message Books are required care must be observed that indents are sent in ample time, in order that no Office may be without its Telegraph Service Message Book.

Although under these orders all Messages will now be paid Messages, it will not be necessary that an Officer of the Department receiving a paid Telegraph Service Message, should give a receipt for such Message, as is done in the case of private individuals.

The rates of charge and the mode of charging will be the same for Telegraph Service, as for other Messages; and in case of repetition, repetition rate will be charged, but repetition Messages should be limited to reports of monthly cash collections and Messages on matters of finance. Messages on the Telegraph Service should be passed along at night when the lines are least occupied. No extra charge will be made for the night transmission of Departmental Messages.

In all cases in which Messages on Departmental Service are found to have been transmitted by Telegraph, that might have been sent without detriment to the Service of the Department by Post, the amount paid for such Messages will be retrenched from the sender.

The entire of the counterfoils of each Circle should be posted as far as possible at one time and, so far as Postal Rules permit, under one cover.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 37.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 18th August 1860.

It frequently occurs that Public News Messages per Overland Mail are received with a remark from some intermediate station to the effect that repetition has

been called for consequent on the Message being partly unintelligible. This custom of calling for repetition of such Messages throws a useless burden on the lines without at all meeting the intended object as the news, either corrected by guess or with the doubtful parts omitted, has been in circulation many hours before the correction by repetition can reach.

It is the business of any station receiving a Public News Message with evident errors to obtain such correction as may be possible from the station it has received it from, and failing success to forward the Message as it stands with a foot note or rider that the words following ——— or the sentence respecting ——— was received from ——— unintelligible.

The Fault Department will trace all Public News Messages and discover the party to blame for errors.

It is peremptorily prohibited to any but the head of the Main Offices (or those in authority over him) at Calcutta, Madras and Bombay ever to call for the repetition of a Public News Message, and this permission should be very sparingly exercised even by these Officers.

The practice of sending *private* Messages received by Mail Steamers by more than one line is prohibited, as the system entails much additional labor on the Department, and much trouble and confusion on the Offices which have to deliver such messages, and to the public who receive them. On the arrival of private Messages by Mail Steamers at Calcutta, Madras, or Bombay, the Assistant in Charge will be careful to forward them by the line that is in the best working order, and by which such Messages are likely to reach their destination in the shortest time.

See Circular 63.

The practice of intimating by Telegraph the time of passing through Offices of the Mail Bulletins is to be discontinued. Copies of Mail News hitherto sent in registered covers to the Officiating Director General are no longer required. All such copies will be sent as ordinary Message Drafts.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

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### GENERAL BRANCH, CIRCULAR No. 38½.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Deputy Superintendent ——— Circle,—Dated Calcutta, the 28th August 1860.

The annexed Form of interruption report has been hypothetically filled up for guidance, and I request that it may be introduced into your Circle, with as little delay as possible, in supersession of all other Forms on this subject.

Each Section of Line is divided into 12 spaces, each space representing 2 hours, thus providing for the day of 24 hours.

Interruptions are marked by a black line extending over the time of their duration.

Imperfect communication is noted by dotted lines, and when the communication is perfect, the spaces are left blank.

Upon receipt of your interruption report for the month of September, (which should be despatched on the 1st of October) a lithographed Form will be prepared in this Office especially for your Circle, and a supply sufficient for the requirements of one year will be forwarded.

One copy of these monthly reports will be sent to the Officiating Director General, and one copy retained in your own Office for record.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

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### GENERAL BRANCH, CIRCULAR No. 43.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Circle,—Dated Calcutta, the 6th September 1860.

TOWARDS obviating the mistakes at present of frequent occurrence in giving the dates of Messages from mistakes in the use of the letters A. M. and P. M., as well as from the omission to notice the change of date at midnight, the following orders will have effect from the date on which this Circular reaches you.

The word *date* will always be understood in its full sense, that is not as a particular day of the month, but as a particular minute and hour, as well as day of the month.

In lieu of the customary mode of reckoning the hours of the day in two cycles of 12 hours each, and designating them as A. M. and P. M., the day will be considered as consisting of 24 hours, commencing at midnight.

The hours will be expressed as follows :—

Midnight will be considered as belonging to the day just ended, and will be termed 24 hours, and supposing the day just ended to be the 18th, the hours of the new day will bear the designations following, viz :—

| | days | hrs. | mins. |
|---|---|---|---|
| 5 minutes past midnight ... ... ... | 19 | 0 | 5 |
| 10 minutes „ „ ... ... ... | 19 | 0 | 10 |
| 1 hour „ „ ... ... ... | 19 | 1 | 0 |
| and so on till | | | |
| Noon, which will be called ... ... | 19 | 12 | 0 |
| 1 P. M. of the usual nomenclature will be ... | 19 | 13 | 0 |
| and so on till | | | |
| 11 P. M., which will be ... ... ... | 19 | 23 | 0 |
| Midnight ... ... ... ... | 19 | 24 | 0 |

Immediately after which the 20th day of the month will be assumed to have commenced.

It is hoped that though this arrangement may not prevent the mistakes of continuing the previous day's date after midnight, it will, from the circumstances of such mistake involving the large error of 24 hours, be more easy of detection in the Complaint Office than the smaller error of 12 hours, and will prevent the error of writing 12 h. 25 m. P. M. indifferently for 25 minutes past noon and past the midnight immediately following.

To aid in familiarizing you with this new system of reckoning the hours, a lithographed dial of the hours, subsequent to 12 is enclosed, which should be pasted on the face of your Office Clock of which it should occupy the portion just within the present hour figures ; provided the particulars called for by my Circular No. 27 of the 1st June have been correctly furnished.

I take this opportunity of directing that all reports which have hitherto been furnished weekly shall henceforth be rendered quarter-monthly. The $\frac{1}{4}$ months being considered to terminate at midnight or 24 hours of the 8th, 15th, 22nd and last day of each month.

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 44.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 8th September 1860.

YOU are directed to exhibit conspicuously at the entrance of the Message Receiving Room of your Office a List in the following form of all undelivered Messages.

The return will be prepared on a half sheet of paper of foolscap size, and a copy forwarded monthly addressed to the "Complaint Office," Government "Telegraph Department," Calcutta.

In the event of a Message remaining undelivered for a period of one month, it will then be struck out of the list, and sent to the "Complaint Office" enfaced with the word "Unclaimed." The receipt being enfaced by the Assistant in Charge with the word "Undelivered," followed by the reason for non-delivery.

| DATE OF RECEIPT IN OFFICE. | | Station from. | Station to. | Person to. | Corrections to suggested Names of Addressees. |
|---|---|---|---|---|---|
| Day. | Month. | | | | |
| $\frac{3}{8}$ | $\frac{1}{2}$ | 1 | 1 | $2\frac{1}{2}$ | $2\frac{7}{8}$ |

*N. B.*—The figures in the columns shew their proper breadth in the inch and its fractions.

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 52.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Deputy Superintendent ———— Circle,—Dated Calcutta, the 30th September 1860.

THE existence of the Complaint Office for all India having rendered the expense of the separate Circle Examiners' Offices, as shewn in aggregate in the margin, superfluous, I request you will intimate to the Message Examiners of your Circle that from the 30th of the current month of September their services will be dispensed with.

Rupees 605 monthly.

The abolition of the Local Examiner's Office will reduce the expenditure in Stationery, Carbonic Paper, and Postage, and lighten the labour of Signal Offices, as the copies of Messages hitherto sent to Deputy Superintendents will no longer be required.

The only copy of any Message existing in any Office will for the future be as follows: In a despatching Office the original received from the sender, and in a transit or receiving Office that taken down at the instrument, and these will, for the future, be sent to the Complaint Office where they will afford more satisfactory data for the examination of Messages than their copies which have hitherto been used for that purpose.

The Clerks who have been employed in several of the larger Signal Offices in preparing the copies of Messages required by the Complaint Office will also, from the 15th October, be dispensed with, leading to a saving in this item as shewn in the margin.

Rupees 849 monthly.

I shall be obliged by your submitting a return made up to the 30th of the current month, of the date up to which the examination of Messages has been completed, as also a return of fines or other punishment inflicted for errors discovered by the Examiner's Establishment since the 1st April of the present year.

Though the Message examinations will cease at the close of the current month, the Establishment itself will be retained until the evening of the 15th October, and will be employed during the interval in preparing the above return and bringing up arrears of work whether in their own or any other branch of your Office.

Copy forwarded to the Assistant in Charge ———— Office for information.

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 53.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge Madras, Bombay, and Galle,—Dated, Calcutta, the 4th October 1860.

I REQUEST you will invariably Telegraph as Public News and addressed to the Assistant in Charge of each of the three Presidency Offices the Office date of that Message which was received last in time for the outward Overland Mail Steamer.

It is obvious that to admit of this information being of any use, the strictest attention must be given to ensure the transmission of such Messages by intermediate Offices in the order of their Office dates. Should a portion of the Mail Messages have been sent by other than the direct route owing to an interruption in the latter, then the latest Office date of Messages in time by each route should be reported.

Copy forwarded to the Assistant in Charge _____ Office for information.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 63.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Circle,—Dated Calcutta, the 1st November 1860.

THE practice of sending Messages by each line alternately where alternate lines are available, as between Calcutta and Bombay, having caused much dissatisfaction to the Public, in consequence of Messages bearing later Office dates arriving by the direct line before others sent between the same places, but which have gone by the alternative line, must cease, and in future the alternative line must be used only in the event of interruption on the direct line.

The rule here published has been acted on as respects Messages between Calcutta and Bombay since the 9th of August, and the result as regards the diminution of the number of complaints of suspected preference has been satisfactory.

Under this arrangement it becomes necessary to define what are to be considered as the chief direct Telegraph routes throughout India.

These are from Calcutta to Madras *through Kookrahatty and Midnapore.*
From Calcutta to Bombay *through Agra.*
From Kurrachee to Bombay and Madras *through Deesa.*
From Madras to Bombay *through Bangalore.*
From Calcutta to Bellary *through Patna and Mirzapore.*
From Bombay to Lahore and Peshawur *through Hyderabad, Scinde.*
From Kurrachee to Calcutta *through Lahore.*

The routes here termed direct are not in every case strictly so. The route from Bombay to Lahore, *viâ* Hyderabad, Scinde, is less direct than that *viâ* Agra, but it has been chosen as the route by which all Messages from Bombay to Lahore or places to its North-West should be sent in order to relieve the Indore Line which has to convey the entire of the important Messages between Calcutta and Bombay.

It may become necessary in consequence of the increased labor thrown on the principal direct lines by this arrangement, especially on that between Calcutta and Bombay to select the smartest Office Assistants and smartest Signallers for employment in the Offices on such lines. Service on these direct routes would in such case be considered as evidence of the merits of Assistants in Charge, and of the ability of Signallers, and would be taken into consideration when making promotions.

The Fault Branch will bring to notice any cases in which it is found this Rule has been disregarded.

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 65.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 10th November 1860.

IN continuation of this Office Order No. 30 of the 9th August, the following are examples of the class of Messages which cannot be sent either by Directors, Superintendents or others under them except at the cost of the parties concerned.

I.—Applications for leave or replies to such.

II.—Calls for Periodical Papers or replies to such.

III.—Circular Orders evidently not of such urgency that injury to the public interests would have ensued by their being sent by post.

IV.—Censure of persons on the Establishment, and threats of punishment as well as orders to punish. Such for instance as an order to pay the cost of a Message.

It is obvious that many communications, such as enquiries on the cause of interruptions and replies to such, can be much more satisfactorily made by letter than by telegram, and indeed every enquiry not capable of a simple answer and involving explanations should be excluded from telegrams and sent by post.

Whenever it becomes absolutely necessary to call for information which it was the duty of the person called on to have submitted long before; the necessity of such calls having already originated in the neglect of the party called on, the cost must be debited to him. But it is also clearly the duty of Directors, Superintendents and others to avoid as far as possible inflicting the cost of such Messages, and such extreme measure should, as a rule, only be had recourse to after a reminder has been sent to the party by post, and due time has been allowed him for reply.

It is the duty of every Director and Superintendent to draw up, for the guidance of those under them, lists of the Periodical Papers which should be sent by every person in his Circle, shewing the period of such paper, that is whether daily, quarter-monthly, monthly, quarter-yearly, half-yearly, or yearly, the dates up to which it should be completed, and the day on which it should be posted; this last item calculated after allowing a reasonable time for preparation in reference to other demands on the time of those concerned.

Thus it would be proper that the report of cash collections by Telegraph should take precedence of all other monthly returns, then the Muster Rolls or Establishment Bills, then the classified numerical returns of Messages, and of cash collections for despatch by post. So far as all these documents however are concerned, there does not appear to me any reason why their preparation should extend beyond the 1st day of the month, or why they should not be posted on that day.

It will be easy for any Superintendent from these indications to arrange a date on which each document sent from his own Office or from those under him should be posted.

A form for the list of Periodical Papers received into or sent from an Office is annexed for guidance; any improvements which Superintendents may desire can be introduced into it.

Complimentary phrases of all kinds should be avoided in Telegrams; the Officiating Director General does not wish them in communications to himself, and he is quite sure that after their prohibition by him, their omission from his Messages will not be misunderstood.

The attention of the Assistant in Charge of an Office has lately been called to the unnecessary length of many of his Messages, the counterfoils having also been written in pencil instead of ink.

One of these Messages was in reference to a squabble with a Signaller at another Station. If Assistants in Charge of Offices choose to occupy the line in conveying such Messages, they must pay their cost. All superfluous words should be avoided, for instance in the phrase "I have no objection whatever," the last word is clearly superfluous. Some recent examples are given below of this style of verbose signalling which is very prevalent.

In juxta position with these verbose Telegrams the information they convey is given in the condensed form in which all such subjects should invariably be treated.

*Examples of Verbose Signalling.*

*Message of* 31 *words.*

Communication with Rewah restored at 8-40—Interruption having lasted 16 hours; beats very weak and irregular.

Full particulars regarding the cause of this interruption shall be sent by to-day's post.

*The same in* 15 *words.*

Communication with Rewah at 8-40.
Interruption lasted 16 hours.
Beats weak—details by post.

*Message of* 68 *words.*

The Interruption was reported to Mr. Artificer Hartigan at 3-45 P. M., two hours after communication had ceased, who has reported himself sick. My Peon starts at day-break by Ecka.

I beg to inform you that the line is in charge of the above mentioned Officer, and it is my duty to do my best to restore communication, but beg you will not hold me responsible.

*The same in* 9 *words.*

Artificer sick.
Peon starts at day-break.
Details by Post.

*Message of* 27 *words.*

In compliance with your last Telegram I beg to inform you that the line was off three posts and in contact with the Hamilton's standards at Nobutpore.

*The same in* 8 *words.*

Line in contact with Iron Post at Nobutpore.

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 66.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 22nd November 1860.

The annexed extract from a letter No. 384 of the 20th ultimo, from the Superintendent of Telegraphs, Southern Division, is published to the Department, and the general principles of the suggestions it contains are hereby directed to be acted on.

For the future such reports as "all's well" or "communication perfect" from Stations to the Head Quarters of Circles and from Circles to the Head Quarters of Divisions, as well as all such reports to the Officiating Director General, will be discontinued.

Interruption and restoration to communication only will be reported. The former 1 hour after Interruption has taken place, and the latter immediately communication is restored. Continuation of Interruption will be reported daily at 6h. or as soon thereafter as possible, and at no other time, and the absence of Interruption reports will be considered evidence that communication is perfect and the absence of continuation reports that communication has been restored, although no formal report to that effect may have been received.

The hour just mentioned as that at which continuations of Interruption are to reported has been chosen as that at which Telegraph Service Messages will least interfere with the general business of the lines, and so far as may be possible, all Departmental Messages should be restricted to the time immediately following the hour in question.

The Circular prescribing the payment of Departmental or Telegraph Service Messages did not contemplate this class of Message being extended to include such as have always hitherto been considered as Public News; these of which a list of the most usual is given in the margin must be sent as "News" free.

Report of Office dates of latest Messages in time for Mail Steamers, arrivals and departures of Steamers, Weather Reports, and any news of general interest.

There are certain classes of Telegraph Service Messages which are unavoidable, and which must be sent free.

These are calls for the repetition or correction of parts of Messages. All such will be free, but they must be *strictly limited to contiguous Stations*, or to such as are in direct communication with each other. Such Messages not having to be repeated at any intermediate Station, and therefore not being taken down at the Instrument, and not appearing in the Message Drafts, need no notice of any kind but the privilege of sending even such Messages free must be used as sparingly as possible.

Extract from letter No. 384, dated 20th September 1860, from J. T. BLISSETT, Esquire, Superintendent of Telegraphs, in Southern Division, to Major C. DOUGLAS, Officiating Director General of Telegraphs in India.

*Para.* 2.—WITH a view to obviate the otherwise heavy cost in the aggregate, for the transmission of morning reports, by the Deputy Superintendents, and Superintendent of the Division, to you, I propose that these reports be discontinued, and notices of *Interruptions* to communication only forwarded in future. The non-receipt of the latter will then lead to the conclusion that perfect communication exists in the Division.

3.—I would also propose that Messages to "all stations" intimating arrivals and departures of Steamers and every other matter of public import be considered "Public News," and accordingly forwarded free of charge.

4.—I solicit your instructions as to whether Messages from one station to another, calling for the repetition of incorrect or unintelligible Messages, are to be charged for. The cost of such Messages cannot, I submit, be even approximately estimated.

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 69.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 25th November 1860.

THE instructions conveyed in paragraph 5 of this Office Circular No. 30, dated 9th August, regarding the disposal of Counterfoils of Telegraph Service Messages having been found inconvenient in practice that paragraph is cancelled, and the following substituted for it:—

*Para.* 5.—On the 1st of October and on the 1st of every succeeding month Assistants in Charge of Offices will forward to the Officiating Director General the Counterfoils (carefully cut from the Message Books so as not to injure the binding) of all Departmental Messages sent by them during the previous month. These Counterfoils must be exact copies of the Messages and must be written in ink, and they will be accompanied by a *single Bill* from the Telegraph Service Message Bill Book with the details endorsed.

The Counterfoils will be retained in the Director General's Office, but the Bill after having been passed by the Auditor under the instructions of the Officiating Director General, but still unnumbered, will be returned to the sender, to be submitted by him in due course as a voucher with the other Bills of the month to the Deputy Superintendent of his Circle. This rule applies to all Officers of the Department.

In the event of any Counterfoils not being passed for the reasons given in this Circular, such Counterfoils will be returned to the sender with a letter in which the Auditor will shew the amounts disallowed and the reasons for disallowing.

This Audit will be a final one, but it is nevertheless necessary to forward the Bills to the Deputy Superintendent with all other Bills of the month for transmission to the Auditor for the purpose of being numbered.

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 71.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 28th of October 1860.

In continuation of this Office Circular No. 43 of the 6th September, the Clock Dial therein alluded to is herewith forwarded.

The Dial gives the hours after noon in accordance with the new nomenclature. It should be trimmed to a size to suit the face of the Office Clock on which it is to be pasted, the figures 24 being placed immediately below the figures 12, and occupying the space within that formed by the original numbers.

It is proposed, should experiments now in progress for direct communication between Calcutta, Madras and Bombay prove successful, to introduce Madras Local time as the Telegraph Time for all India. For this purpose the difference between the Telegraph Time and that shewn by a Clock at your Station has been given. The use of this special Telegraph Time can only however be necessary in the event of through communication becoming general. Further particulars are therefore for the present deferred.

In continuation of the instructions conveyed in the Circular already quoted, the following form is to be used in every case where the name of the month as well as the date is given.

Let the date to be expressed be the "18th of October at 25 minutes past 3 in the afternoon." The proper mode of expression will be as follows:—October 18th 15 hours, 25 minutes, (and *not* 18th October, 15 hours 25 minutes) or more briefly, October 18, 15, 25.

In your register as well as in all entries of dates and in the copies of Messages sent out to the addressee, as well as in the times of despatch of such Messages entered in the receipt, and in every case without exception in which the date has to be mentioned, this mode of reckoning must be followed.

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 72.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 30th October 1860.

As some misapprehension appears to exist regarding the nature of appointments in this Department, the following is circulated for information:—

Every appointment whether permanent or temporary in whatever grade or on whatever rate of pay, and whether or not intimation to that effect has been given, is on

probation for six months, and at the expiration of that period the appointment is to be considered as confirmed failing any notice to the contrary.

All persons in the Department having it in their power either to recommend, or to appoint, or to promote, are desired to take care that the above limitation is made known to all who may apply to them for admission to, or promotion in, the Department.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

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### GENERAL BRANCH, CIRCULAR No. 76.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 6th December 1860.

From recent delays in Messages sent from Bombay to Calcutta, the time in transit having been sometimes 24 h. and upwards, and which delays were not explicable either by press of work, or imperfect working, or interruptions, it seems probable that neglect occurs in the proper arrangement of the Messages placed for transmission at the Instrument whereby some Messages unintentionally get an undue preference, and others are as unduly delayed.

No rule having yet been laid down on this subject, the following course will be for the future followed in all Signal Offices as respects the arrangement of Messages waiting despatch.

The Messages at each Instrument for transmission should be filed face upwards in a position convenient for the Signaller, and in the strict order of date of receipt, whether received from another Office or from the public. Any additional Messages for transmission from the same Instrument will in like manner be added in the order of receipt to the file, being placed face upwards and underneath all Messages previously at the Instrument. Thus it will be impossible that any Message shall unintentionally receive undue preference or be unduly delayed.

Peons and others employed in Signal Rooms for the distribution of Messages should have the above rule explained to them, and if this is once understood and carefully carried out, there need be little fear that irregularity in the signalling of Messages will be chargeable to them.

The Assistant in Charge of an Office is the person who will be held answerable for all irregularities of transmission. It is his duty not only to instruct Signallers and Peons on the rule now laid down, as well as on any other points tending to ensure the regular transmission of Messages, but also to watch the first introduction of any change such as the present to ensure its becoming a fixed Office habit, and afterwards to take care that the rule, once established, is not permitted to fall into disuse. He should with this intent frequently examine the files of Messages at the Instruments, and report all neglects to the Deputy Superintendent for communication to me.

As a copy of the report of the greatest and least times taken by Messages between Calcutta and the Towns of Madras and Bombay is daily published in the Departmental *Gazette*, and as similar reports are prepared at Madras and Bombay for communication to the Government and to the public at those places, and as the opinion of the public regarding the efficiency of the Telegraph, and the consequent pecuniary prospects of the Department from that source must be much influenced by these reports, it behoves all in charge of Signal Offices to make every effort to insure the rapid and regular transmission of all Messages passing through their hands.

To second the efforts of Office Assistants and others in giving effect to the arrangements above detailed, exprimental Files are under preparation for use at Signal Instruments, which will be issued to Offices as soon as a pattern has been approved: meanwhile I shall be glad to receive suggestions from any one on this subject.

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 80.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ——————— Office,—Dated Calcutta, the 30th of December 1860.

THE following alteration in the mode of fining for errors made in the transmission of Messages is published for the information of the Department.

In all cases of gross error such as might have been detected by the most cursory glance at the Message, and the existence of which is evidence that the Message has not been read by the Assistant in Charge of the Office where the error appears, the fine which it has hitherto been the custom to divide between the Signallers at the two Stations between which the error occurs, will in future be shared between them and the Assistant in Charge of the Office where the first perversion of the Message took place, and in the following proportions, viz :—The Assistant one-half the value of the Message, and the remaining half in equal shares from the Signallers concerned.

The following recent example of a case of this kind is given :—

*Copy of a Message from Allahabad to Jubbulpore as it appears in the Benares Office Message Drafts.*

In last paragraph of your letter number 101, dated 13th ultimo, which Deputy Collector do you mean.—Reply by Telegraph mentioning name.

*Copy of the same Message as it appears in the Mirzapore Office Message Drafts.*

In last paragraph of your letter number 101, dated 13th ultimo, reached Deputy Collector due me.—Reply by Telegraph mentioning name.

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 82.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 5th January 1861.

IN continuation of Circular No. 66 of the 22nd November 1860, and in supersession of the latter portion of paragraph 4 of that Circular, it is directed that in view to relieve the lines as much as possible of the unprofitable burden of Departmental Messages, the following order will have effect from the date of its receipt :—

Interruption to be reported 1 hour after it has occurred, as directed in Circular 66, dated 22nd November 1860.

Restoration to be reported *immediately* communication is restored, as directed in Circular 66, dated 22nd November 1860.

Continuation of Interruption to be reported daily at 6 h., or as soon after as possible, and at *no other time* as directed in Circular 66, dated 22nd November 1860.

Weather Reports from the Stations concerned to be reported daily at 12 h., and at *no other time* as directed by Telegram dated 10th July 1860.

No Messages on Telegraph Service, with exception to those noted in the margin, will be sent until 2 h. 0. m. of each day, unless the word "Urgent" is given as the first word of the text of the Message.

All Officers in Charge of Offices receiving Departmental Messages for transmission will reserve such, and will not transmit them, even in the event of the line being clear, until the abovementioned time.

Messages of a very urgent nature, the detention of which might prove detrimental to the interests of the Department and the Public Service, may be sent as at present, but all such must be preceded by the word "Urgent"* which will form the first word in the Message, and the Officiating Director General will hold the Senders of all such responsible that the urgency of the case fully necessitated the exception to the Rule being made, and that undoubted injury to the interests of the Department would have resulted by the detention of the Message till the hour laid down for its despatch.

* The Fault Branch of the Director General's Office will report abuses of this nature.

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 88.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 22nd of January 1861.

VERY serious inconvenience is caused to the public and much discredit to the Department by delays in the delivery of Telegrams, more especially during the meal times of the parties to whom they are addressed.

On a recent occasion the Officiating Director General was himself witness of a delay from this cause which to his knowledge had lasted ¼ hour, and which the Peon stated was in all half an hour.

In the case referred to, the Officiating Director General found the Peon waiting at the door of the Military Club in Calcutta with Telegrams addressed to persons supposed to be in the Club, but which no servant would receive from him. A servant was called, the Messages handed to him, and on the Officiating Director General leaving the Club ¼ hour later, the Messages were still with the Club servant who had not attempted to deliver them.

The only defence against such disgraceful conduct on the part of private servants is to give peremptory orders to the delivery Peons to wait no servant's leisure, but in the event of a Message not being at once received from the Peon, the latter is to deliver a printed notice in the from (A) to any servant who will take it, or failing this, he is to leave the notice on the premises, and at once proceed with the delivery of any other Messages he may have in hand. Each delivery Peon will be furnished with a stock of these forms.

The Message will after this be returned to the Telegraph Office where it will be left until called for, being meanwhile published as an undelivered Message.

It will occasionally happen that delays occur after the delivery of a Message, and in such case it will become necessary for the Peon to wait in view to recover possession of his receipt book, but he must in such case report the detention on his return to the Office, and on such report a letter in the form (B) will be sent to the party against whom detention has been reported.

Some caution and judgment must of course be exercised in carrying out these instructions. It may happen that a Telegram which has not been received by the servant of a house would, if received, have been returned as not intended for any resident in the house. In such case the refusal of the servant to receive the Message and subsequent action thereon, as directed in this order, would lead to great delay in the delivery of the Message to the person for whom it was intended.

(NOTICE FORM A).

*Government Telegraph Office,*

_____ STATION.

*the* _____ *of* _____ 1861.

THE servants of this house having refused to receive a Message believed to be intended for an inmate of it, the Message has been returned to this Office, and will be delivered to any authorized person calling for it. It will meanwhile be published as an undelivered Message.

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(FORM B.)

*Government Telegraph Office,*

_____ STATION.

*the* _____ *of* _____ 1861.

To_____

SIR,

Considerable delay is reported as having occurred to-day in the return to the Telegraph delivery Peon of his Message Receipt Book. As the detention of this book causes inconvenience to other parties by delaying the delivery of their Messages, it is earnestly requested that, should the report be correct, you will not subject the Peons of this Department to a repetition of this delay.

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*In charge of Office.*

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## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 92.

From Lieutenant-Colonel C. DOUGLAS, Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 10th February 1861. (Revised and re-published on the 6th March 1862.)

THE following Extract from the Supplement to the *Calcutta Gazette* No. 6, dated the 23rd January 1861, is published.

In accordance therewith, and to insure the utmost benefit to Office Establishments from the arrangement therein ordered, the following rules will be observed:—

Work of every description in Telegraph Offices, with the exceptions hereafter mentioned, will be entirely suspended between the hours of 8 and 16 on all Sundays throughout the year, as well as during the same hours on the following Public Holidays,

as well on such other Holidays as the Government may on special occasions direct to be observed: viz., Christmas Day, New Year's Day, Good Friday, and the Queen's Birth-day.

Public News and Mail Messages, as well as Government Messages, certified in writing by the senders to be of such urgency that their detention until 16 hours would be to the prejudice of the public service, as also such private Messages as may carry the certificate of the Chief Civil Officer of the station of their like urgency, must form exceptions to the order.

To insure these exceptional Messages from detention, a smart and trustworthy Signaller and a Peon must be on duty in the Signal-room during the hours as above that the Office is closed, and the Assistant in Charge or his Deputy should on no account leave the Office without informing the Signaller on duty where he may be found if wanted. Should a Mail or other important Message be announced, the transmission of which by the Signaller on duty would, if unaided, involve delay, he must at once send the Peon to inform the Assistant in Charge or his Deputy, who will without delay return to the Office to assist in the transmission of the Message.

Notices should be posted outside the Signal Office, notifying its closure on the days mentioned. Two copies of such notice accompany this Circular of which one must be filed with it, and the other posted as directed.

*N. B.*—The original Circular should be removed from the Circular-Book to make place for this.

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## HOME DEPARTMENT.

*Closing of Telegraph Offices on Sundays and General Holidays.*

THE arrangement proposed by the Officiating Director General in the following letter has been sanctioned by Government:—

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to W. GREY, Esquire, Secretary to the Government of India, Home Department,—No. 8270, dated the 26th December 1860.

I HAVE the honor to suggest that this Department be permitted to benefit by some relaxation from work on Sundays and on all general Holidays, such as New Year's Day, Christmas Day, and Good Friday.

2. In view to this I would propose that on such days every Telegraph Office in India be closed altogether between the hours of 8 and 16, (or 4 P. M.) and that a double charge, viz. that levied on night Messages, should be made on all Messages received for transmission between 6 and 8 and 16 and 18 hours (or 4 P. M. and 6 P. M.) of those days.

3. To admit of a judgment being formed of the amount of inconvenience which such a measure as I have proposed might be expected to inflict on the customers of the Department, I annex a Statement of the average work of a Sunday in the Calcutta

Office, deduced for an examination of the Messages for the five months, January to May, of the current year.

4. It should be remembered that the Sunday in the Table is of twenty-four hours, while the period on which it is proposed to close the Offices is eight hours only.

*Return of Service and Private Messages received for transmission at the Calcutta Office, from 1st January to 1st June 1860.*

| Months. | Number of Messages. | | | | Remarks. |
|---|---|---|---|---|---|
| | Service. | Private sent by | | Total. | |
| | | Europeans. | Natives. | | |
| January ... | 351 | 1,207 | 1,231 | 2,789 | |
| February ... | 463 | 1,119 | 1,501 | 3,083 | |
| March ... | 416 | 1,185 | 1,235 | 2,836 | |
| April ... | 355 | 1,065 | 1,285 | 2,705 | |
| May ... | 323 | 810 | 1,098 | 2,231 | |
| Total ... | 1,908 | 5,386 | 6,350 | 13,644 | |
| Deduct Sunday Messages | 63 | 235 | 749 | 1,047 | |
| Remainders ... | 1,845 | 5,151 | 5,601 | 12,597 | |
| Daily average ... | 14·19 | 39·62 | 43·09 | 96·90 | Of week day Messages. |
| Monthly average ... | 369 | 1030·2 | 1120·2 | 2519·4 | |
| Daily average ... | 2·86 | 10·68 | 34·05 | 47·59 | Of Sunday Messages. |
| Monthly average ... | 12·6 | 47· | 149·8 | 209·4 | |

(Signed) C. DOUGLAS, *Major,*
*Offg. Director Genl. of Tels. in India.*

## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 96¾.

From Major C. Douglas, Officiating Director General of Telegraphs in India, to the Deputy Superintendent ———— Circle,—Dated the 25th February 1861.

I forward by Banghy this day copies of forms of descriptive and confidential Character Rolls of all persons in your Circle of the grades of Assistant Deputy Superintendent, Inspector, Signaller, Probationer or Artificer.

These Rolls should be returned with the columns affecting character filled up with information on the following points :—

1.—Knowledge of the language of the country.

2.—Character as regards temper with natives.

3.—Sobriety.

4.—Whether occasion has arisen for suspecting the honesty of the person.

5.—Special knowledge possessed, which can be brought to bear usefully on the person's duties in the Department, such as ability to signal and receive by Morse or Needle.

6.—Knowledge of Electrical Science.

7.—Skill as a Mechanic.

8.—Natural ingenuity.

9.—Amount of education whether good, limited, &c.

10.—Health as affecting efficiency.

11.—Peculiarities either mental or physical.

The Form given below has been hypothetically filled up in italic type for your guidance :—

Name *John Smith,*

First engaged in (place) *Bombay,* on the 14*th* of *January* 1858. Race *East Indian,*

Father's occupation *Custom House Officer.* Born in *Madras.* Educated in *Bangalore.*

On 30th of September 1860, Service years *two* months *eight.* Grade *Signaller.*

Employed how *In charge of Office,* where (Station) *Nagpore,* Circle *Central India.*

Description—*Height about* 5 *feet* 4 *inches, dark hair and eyes, prominent teeth, sallow complexion, a scar on the right cheek, speaks slowly, and has a stooping gait.*

| Facts Favorable. | Facts Unfavorable. |
|---|---|
| (1). *A perfect knowledge of the native language.*<br>(2). *Temper with natives good.*<br>(4). *No reasons for suspecting his honesty.*<br>(5). *Can read and signal on both Morse and Needle.*<br>(8). *Repairs the Office clock when necessary.*<br>(9). *Education good, writes a neat hand.*<br>(7). *Has great Mechanical taste and skill.* | (3). *Intemperate habits.*<br>(6). *No knowledge of Electrical Science.*<br>(10). *Health indifferent, frequently absent from duty on this account.*<br>(11). *Very Eccentric.* |

# GOVERNMENT TELEGRAPH DEPARTMENT.

## GENERAL BRANCH, CIRCULAR No. 98½.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Deputy Superintendent ———— Circle,—Dated Calcutta, the 1st March 1861.

RECENT occurrences in the Bombay Circle have shewn the necessity of taking the strictest precautions against Messages being improperly divulged in Signal Offices or falsified while in transit.

At some Stations it has been found that the retiring room for Signallers is so near the Signal-room as to put it in the power of those off duty to acquaint themselves with the Messages passing through the Office.

It has also happened that the necessary control over the movements of the Signallers, while on duty, towards preventing those so disposed from divulging the contents of Messages, is not always exercised, and it would appear that in some cases receiving Clerks, have permitted Messages, awaiting despatch, to be examined by others than the senders or have not taken precautions to prevent Messages so circumstanced being read by any person interested in learning their contents.

Again a recent occurrence near Poona has shewn that no security whatever can be expected against the tampering with Messages in transit so long as the lines are at such a distance from the high roads as to remove them from the observation of the Police and travellers, and render their inspection by Officers of the Department a matter of difficulty.

You are therefore requested, in view to remedying as early as possible the faults above referred to, so to arrange each Office in your Circle, that it shall not be in the power of any person not on duty in the Signal-room to hear the Messages received, and that no one when on duty in it shall have an opportunity of communicating with any one outside, and you will also make arrangements in each receiving Office for keeping the public at such a distance from the receiving Clerk as will prevent the possibility of Messages, after receipt by him, being read by others.

Assistants should be directed to send you a rough plan of their Offices pointing out the changes in the arrangements which they may consider necessary to ensure the object in view. These plans should be forwarded to this Office under your remarks and recommendations in detail.

As respects the line, you must at once arrange for changing the direction of such portions of the lines in your Circle as may at present be undergoing extensive repair or re-construction, so as to bring them if possible close to the main road, or at the farthest 50 yards from it, whether such is a Railway, or Highway, and that in cases where such repairs or re-constructions are not in progress, but where the alteration can be conducted at a trifling cost, you will also at once arrange for its being done.

In cases, however, where such alteration would involve considerable outlay, or from the open nature of the country may seen unnecessary, you are requested to report and defer action until you receive orders from this Office.

In carrying out the objects of this Circular it may be laid down that the reliefs of Signallers should be as seldom as possible, viz. every 12 hours only, and that those reliefs should take place at 6h. or 8h. and at 18h. or 20h., and in the presence of the Assistant in Charge or his Deputy. Further that as respects the day watch, the meals of the Signallers taken during their hour of duty should be brought in and removed by a Peon of the Office who should be told off for this duty (of course not exclusively), and that the privy for the Signallers while on duty should communicate direct with the Signal Office, and should not be accessible from the outside, without the knowledge of the Assistant in Charge.

As regards the Signal Office itself there should be but one means of access to it, and this should be through the sitting room of the Assistant in Charge, or else through the Message receiving room. This entrance should be as much exposed to general observation as possible, and its door should at all times remain locked, the key being in the keeping of the Assistant in Charge or his Deputy. The above arrangements are to a considerable extent those at present in force in the Calcutta Office, and should be carried out without delay in all other Offices as far as may be possible.

*N. B.*—COPY forwarded to all Assistants in Charge of Offices.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

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### GENERAL BRANCH, CIRCULAR NO. 99.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Deputy Superintendent ———— Circle,—Dated Calcutta, the 10th March 1861.

LIEUTENANT MALLOCK whose appointment to the Department as Store Superintendent was notified in the *Government Gazette*, No. 12 of 9th February, reported his arrival and assumed charge of the Store Department on the 29th January. On publishing this new appointment to the Department, it becomes necessary to define the duties which attach to it.

Hitherto there has been no Store Superintendent for the Department generally, the only approach to such an office has been in the case of the Bengal Deputy Superintendent who has acted as Agent for the supply of Stores either received from England, or procured on the spot, to other Circles in his immediate neighbourhood, the supply in question being as a rule limited to the Pegu, Dacca, East Coast and Punjab Circles.

In like manner the Superintendent of the Madras and Bombay Circles supplied the remaining Circles of the Department.

The control over the Stores did not appear sufficient under the system described.

Under the new arrangement the entire issue of Stores will be under the control of the newly appointed Store Superintendent acting in this branch as the Assistant of the Director General.

The introduction of the new system will be very gradual; it will at first be limited to the Eastern Division, and will gradually, as the Establishment becomes acquainted with its duties, be increased, so as at length to include the entire Department.

In order that a due supervision may be kept of the expenditure of all Stores, the Store Superintendent will keep a Current Account with every Officer of the Department who may be in charge of Stores. To enable him to do this, and at the same time to cause as little trouble as possible to individuals, he will be authorized to send out printed forms of Balance Returns which will, immediately on receipt, be filled in with the balance carefully ascertained, and returned to him. Should any article of Store be in hand, the name of which does not appear in the printed form, it should be entered in a supplementary sheet that will accompany the above mentioned form. To avoid confusion, the names of all articles are in every document to correspond with those given in the Balance Returns.

Each Officer in charge of Stores will also forward to the Departmental Store Superintendent monthly on separate papers (forms of which will be supplied) a list of all articles received, whether on Indents, by purchase, or otherwise, and of all issues, whether for Office expenditure, construction, or repairs of lines.

These Returns will be entered in a Ledger Account to be opened with each Officer, and the information thus obtained will enable the Store Superintendent to bring to the notice of the Director General any improper or excessive expenditure.

The Stores will, as hitherto, be issued on Indents which, having been examined and checked by the Superintendents of Circles, will receive their signature, and be forwarded by them direct to the Store Superintendent for the Director General's sanction.

Indents for articles which are urgently required, and for which there is not time to obtain the sanction of the Superintendent, may be sent direct to the Store Superintendent with a remark to that effect, but in such case a copy marked duplicate must be forwarded by the same post to the Superintendent, who will forward it without delay to the Store Superintendent.

New forms of Indents have been prepared for which Deputy Superintendents will apply in sufficient numbers to meet all probable wants of the Offices, Inspectors or Artificers in their Circles, and will direct the cancelment of the forms hitherto in use. When the Stores are issued, an Invoice of all the articles issued including package will be sent to the indenting party by post, who will on their receipt compare them with the Invoice, and return the receipt signed, noting on it any articles received short, or in excess, or which are not of the pattern required, or the quality of which may be deemed inferior. This receipt will be the authority for debiting his account with the issue.

In the event of any article being required to replace such as may need repair, or have become unserviceable or lost, the Officer Indenting will enter on the back of the

Indent a full explanation of the causes from which the Deputy Superintendent will be able to check the indents.

No article is ever to be sent for repair, but a new one is to be indented for in lieu, and the repairable article is to be sent into Store at any convenient opportunity.

The Store Superintendent will issue instructions for the disposal of packages and of articles which have become unserviceable, obsolete, or surplus to present wants.

In the case of persons in charge of Stores having to transfer those Stores to another, a list of the articles so transferred, signed by both the transferring and receiving Officers, must be forwarded to the Store Department on the day of transfer.

The Store Superintendent will forward periodically to every one with whom he may have transactions a statement of the articles standing against him for his satisfaction, which statement must, after examination, be signed and returned with any necessary remarks to the Store Superintendent.

As respects accounts: The Store Superintendent's Department being now entirely distinct from that of the Deputy Superintendent, Bengal, he will cease to draw cash from or send estimates or other accounts to that Officer, but will, from the commencement of the next official year, viz. 1st May 1861, submit his separate estimates and bills to the Director General, and render his separate Account Current to the Accountant General.

As regards the forms of accounts with the new Store Department, it will become necessary to make some changes in those hitherto in use, and these the Officiating Director General will publish to the Department by Circular; but as regards Current Correspondence, he begs Deputy Superintendents to accept as if from himself all instructions respecting Stores that may reach them under the Store Superintendent's signature, acting in the capacity of his Assistant.

*N. B.*—Copy forwarded to all Assistants in Charge of Offices.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

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### GENERAL BRANCH, CIRCULAR No. 101½.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 5th April 1861.

THE following correspondence, regarding the arrangements to be observed when receiving Messages for transmission which may have to be conveyed over a portion of the lines of any private Telegraph Company, is circulated for guidance:—

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to W. GREY, Esquire, Secretary to the Government of India, Home Department,—No. 9211, dated Calcutta, the 22nd March 1861.

I BEG to suggest a simplification of the method of doing business by this Department with Private Telegraph lines, such as those belonging to the various Railways.

The proportion of the charge for transmission of Messages over mixed lines, as from any Station of the Indian Telegraph system to any other Station (the Message having over some portion of its course to be conveyed along a Private Telegraph line) is settled by account. Such accounts involve much trouble, and the attempts at their adjustment through the agency of Assistants who have either left the Department, or been removed to other Offices, cause endless confusion and much correspondence and delay, all which might be avoided by requiring that any particular Telegraph desiring to send a Message over the lines of another shall pay the cost of transmission in cash. As an example: Suppose that this Department has to send a Message which, to reach its destination, must pass over two Sections of a Railway Company's line; the receiving Office will have to take the cost of transmission over its own lines with any additional charge that may be necessary for its transmission over the two Sections of the Railway line. On the arrival of the Message at the place where the first break occurs, it is to be delivered to the Railway Company's Telegraph, and the charges for its transmission along the two Sections of their lines will be paid for in cash. The Message in passing out of the first Section of the Railway line will be received at the Government Office without charge, the mere fact of its having been first forwarded from a Government Office, as shewn by the name of the Station from which it was originally transmitted, being accepted as evidence that its full cost of transmission has been paid. In like manner when presented at the second Section of the Railway Telegraph, it will be received there without further payment on the assumption that when received at the first Section the cost of its transmission through both Sections had been paid. The signature of the Clerk who sends a Message to the Office of another line for transmission must be accepted as an equivalent for the true signature of the Sender required by Clause XX of the revised Rules of this Department.

The receipted Bills of the Private Telegraph Offices for the Messages sent through them will be the Vouchers to the contingent Bills of Offices for the cost of all such Messages sent during each month.

Further, in the case of Messages sent in the first instance from a Station of a Private Company, they will be treated on entering the Government lines as if received from the public, that is to say, must be paid for in cash, and will appear in the Office Register and bear an Office monthly number.

*P. S.*—It is not proposed that this arrangement should apply to the Ceylon lines, as it would entail the necessity of a Government Office with a sufficient Establishment being opened at the Northern extremity of the Island, the point of junction of the lines of this Government with those of the Ceylon Government.

From Lord H. ULICK BROWNE, Under Secretary to the Government of India, Home Department, to Major C. DOUGLAS, Officiating Director General of Telegraphs in India,—No. 625, dated the 2nd April 1861.

I AM directed to acknowledge the receipt of your letter No. 9211, dated the 22nd ultimo, suggesting a simplification of the method of doing business by the Telegraph

Department with Private Telegraph lines, such as those belonging to the various Railways, and in reply to state that the Governor General in Council authorises you to carry out the proposed arrangements in communication with the Railway Companies.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 101§.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 6th April 1861.

THE following arrangements for the establishment of Training Schools and for training Signallers in Offices having received the sanction of Government are published :—

The arrangements comprise the establishment of four Schools, two in the Eastern, one in the Southern, and one in the Western Divisions, with permission in special cases to train in Offices.

The maximum salaries proposed to be paid to Probationers were as follows :—

| | | |
|---|---|---|
| Upon joining the School ... ... ... | Rs. | 25 per mensem. |
| When able to receive Signals at the rate of 5 words per minute | „ | 30 „ |
| When able to be read Signals at the rate of 10 words per minute and reported qualified by a fair knowledge of such of the Departmental Circulars as concern Signallers for doing duty in an Office ... ... ... ... | „ | 40 „ |

The above rates, which were considered too high by Government, were on the 6th of April last reduced to Rupees 25, 30, and 35, and from the 1st of May next will be further reduced to Rupees 20, 25 and 30, the rates proposed in my original communication to Government on this subject.

Previous to admission to the School the parent or guardian of the Probationer, if a minor, or the Probationer himself, if not under 21 years of age, must sign a Bond engaging that he will serve the Department for two years. Forms of Bond to be used in either case accompany, of which spare copies will be supplied on application.

The allowance to Instructors in Training Schools will be Rupees 2 for each pupil under tuition, to be continued for a period not exceeding three months.

The number of Probationers permitted to be trained in Offices and only under special sanction from the Director General must at no time exceed four. The allowance to the Assistant in Charge will be Rupees 10 for each pupil trained, payable when reported competent to receive signals at the rate of 12 words per minute, and otherwise qualified for duty in an Office.

In no case is a pupil to receive pay while under tuition in excess of three months, and no Instructor will draw the training allowance in excess of that period. If after three months' instruction a Probationer is not qualified for Office duty, he will be dismissed;

and if during the course of the first month's instruction he holds out no reasonable hope of qualifying himself within the prescribed period, he must be at once removed from the Department.

Probationers coming under tuition on the 1st of the month will draw pay from that date. If coming under tuition between the 1st and the 16th, they will draw pay only from the 16th; and if between the 16th and the end of the month, they will draw pay only from the 1st of the month following. The same rule will apply to all increases of pay as well as to the allowances to be drawn by Instructors.

All Probationers should be passed by a Medical Officer as being in sound health and free from any bodily defect that would interfere with their fitness for active employment.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 102.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Deputy Superintendent ———— Circle,—Dated Calcutta, the 23rd April 1861.

THE following arrangements for the conservancy of the lines and for the division of line duties will be introduced as soon as possible after the receipt of this Circular.

The lines of each Circle will be broken up into a few natural DIVISIONS, and placed each under an Inspector; the most efficient Inspectors having charge of the DIVISION of greatest public importance.

Such DIVISIONS should comprise portions of line, of a length depending on the facilities for travelling which the Circle affords.

In the Bengal Circle on the Main Line between Calcutta and Agra, and in the Punjab Circle between Agra and Lahore, in both which cases facilities for rapid travelling exist, the distances should be from 100 to 120 miles, but elsewhere these distances may require to be lessened.

Each Inspector of a DIVISION should have Artificers, European or Native, under him, for the charge of SUB-DIVISIONS of the line; the length of each SUB-DIVISION depending on the facilities afforded for travelling, but being such as can be conveniently examined in the course of a few hours.

In the cases already quoted these SUB-DIVISIONS may be of 50 to 60 miles. In districts where the means of rapid travelling, as by Dawk Carriage, do not exist, mounted Artificers should be employed, and have charge of SUB-DIVISIONS of Line of 25 to 30 miles in length; elsewhere Foot Artificers should be employed.

The Artificers which I think it will generally be preferable to employ, are Natives.

The pay which may be necessary to induce smart young men to enter the Department as Native Artificers will depend on the locality, but it should not exceed

25 Rupees, and will in many cases be sufficient at 10 Rupees. Such Artificers, if mounted, should receive single poney allowance at Rupees 10 per month for the charge of SUB-DIVISIONS of 25 to 30 miles in length, and double poney allowance if in charge of SUB-DIVISIONS of from 50 to 60 miles length.

The men must be sufficiently educated to enable them to keep accounts in their own language.

Wherever the system of Foot Artificers or Line Guards is in force, each should have charge of a SECTION of 12 to 15 miles in length, and some check is indispensable to insure actual travelling over their Sections daily.

A system of printed and dated checks sent from a terminal Office daily at a stated hour, and passed along from guard to guard, the date being noted at each Telegraph Office, would be effective for this object. Such a system is in force in the Indore Circle, and the results have, I believe, been satisfactory. Precautions must, however, be taken to prevent collusion on the part of the line guards with the Dawk runners or travellers for the transmission of the checks through their agency.

Some such system of check must be introduced on all lines where line guards are employed, and Deputy Superintendents are requested to make arrangements for this object, and to report the nature of such arrangements.

It will also be desirable to introduce checks in the case of Mounted Artificers, but the distance they will have to travel, and the speed they must use in all cases of interruption, must be taken into consideration when arranging the frequency of the visits of such men along the SUB-DIVISIONS under their charge.

It is hoped that in replacing by Native Artificers all European Artificers who may have shewn themselves wanting in the necessary energy for line work, a more efficient system of conservancy will be introduced, and at less expense than is the case in some Circles under the present system.

*N. B.*—Copy forwarded to all Assistants in Charge of Offices.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

### GENERAL BRANCH, CIRCULAR No. 102½.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ——————— Office,—Dated Calcutta, the 25th April 1861. (Re-issued and revised on the 30th November 1861.)

A RECENT case having occurred in which an urgent Government Message occupied six days in reaching its destination, having, through an interruption to telegraphic communication, been conveyed by post over a considerable portion of the entire distance, although an alternative route was available by which the Message might have been sent, the following instructions will be observed in all future similar cases.

On an interruption occurring, the Assistant in Charge of the Office beyond which it has occurred, will at once singal, on "Precedence," to the Station in rear from which an alternative line proceeds and to all intermediate Stations "wait interruption," but will withhold a report of the interruption until *one* hour after its occurrence, the interval being employed in testing the instruments, and in examining the main and water lines, the former to a distance of one mile from the Office. If, at the expiration of the hour the interruption continues, and its cause has not been ascertained, then a Precedence report of the interruption is to be sent to the Deputy Superintendent of the Circle, and the Assistant in Charge of the Office in rear from which an alternative line proceeds, *and to no other persons.*

These reports will in all cases be sent by that Office only which is nearest to the person to be informed, and must be repeated at every intermediate Office between that in which the report originated and that from whence the alternative line proceeds.

On receipt of the "wait interruption" the Assistant in Charge of the Office whence the alternative line proceeds, and of all Offices between it and the interruption will put aside all Service, Telegraph Service, Public News, and Mail* Messages for places beyond the interrupted Section, and on the *report* of interruption they will at once proceed to telegraph *duplicates* of these Messages by the alternative line marking them as *duplicates*, the word "Duplicate" being given immediately after the statement of the number of words; telegraphing the *originals* of these Messages, as well as all Private Messages, other than Mail, to the station beyond which the interruption has occurred for direct transmission thence by the *first* Post and by Telegraph on the direct line, as soon as the interruption has been cleared. The originals sent by the direct line must be marked as such.

Any Service, Telegraph Service, Public News, or Mail Messages which happen to be on hand in an Office just beyond which an interruption has occurred, or in those between such Office and the Office of the alternative line, or which may have been forwarded from the Station in rear whence an alternative line proceeds, previous to the report of interruption having reached such Station, must of course be signalled back to the rear Station for transmission along the alternative line, the word "Duplicate" being added in the description as already directed; and when communication has been restored, the *original* Messages which were in hand at the Station next the interruption, or which had been forwarded to it, will invariably be transmitted to destination by Telegraph in due course should communication be restored before the post copies have reached the Station with which the interruption existed.

Such will be the general course of procedure to ensure Service, Telegraph Service, Public News and Mail Messages being forwarded to destination by Telegraph, and with the least probable loss of time. The course above prescribed does not contemplate the rarely occurring case of an interruption at so very short a distance from the destination of a Message that it will obviously be preferable to send it over the interrupted portion at

* The term *Mail Messages* is intended to comprise Messages whether Public News, Service or Private, received from or for delivery to Mail Steamers, all such Messages being transmitted under the *clear the line* signal.

once by post only, and not by Telegraph along the alternative line. All Messages sent by post must be *registered* and addressed to the Assistant in Charge of the nearest Office beyond the interruption, the words "Telegram" "Very Urgent" being written in large characters along the upper margin of the envelope, which should be of coloured paper.

This Office Circular No. 63 of the 1st November has pointed out what are to be considered as the direct routes between the Chief Towns in India, and has directed that such direct routes are invariably to be made use of in the transmission of Messages. If this order is attended to, it will in most cases be obvious, from the destination of Messages and the lines they are proceeding by, whether they are originals or duplicates.

The following case is given as an example of the application of the preceding instructions :—

An interruption occurs between Umballa and Jullunder. Umballa telegraphs on precedence to the Assistant at Agra, whence the alternative line through Indore proceeds, as well as to the Assistant at the intermediate Offices at Delhi and Allyghur, "wait interruption," and at once commences a search for the cause of interruption, having at the time several Messages in hand which were received from Delhi, and which are destined for Lahore, Rawul Pindee and Peshawur.

The cause of interruption not having been discovered, Umballa, after an interval of one hour, will send a "Precedence" report of the interruption to the Deputy Superintendent of Telegraphs, Punjab Circle, and to the Assistant in Charge at Agra, from which Station the alternative line proceeds, and to the Assistants in Charge of the intermediate Offices at Delhi and Allyghur. Agra, which from receipt of "wait interruption" had ceased forwarding Messages for Stations beyond Umballa, will now transmit all Service, Telegraph Service, Public News and Mail Messages in hand, as well as all which may be received for such Stations, through the Indore line until restoration to communication has been reported, and Umballa, Delhi and Allyghur will arrange for transmission by Telegraph of all Service, Telegraph Service, Public News and Mail Messages destined for places beyond the interruption, which they may have in hand, by the alternative line through Agra, marking the Messages "duplicate," and adding the words "*through* Agra*" after the name of the Station for which such Messages are intended, at the same time signalling the originals and all private Messages to Umballa to be forwarded thence by post. In the event of communication not being restored, Umballa, in addition to the re-transmission to Agra of the Service, Telegraph Service, Public News and Mail Messages that were in hand at the time of the interruption, will send copies of all such as well as of those that may have been received from the intermediate Stations, together with all Private Messages *by Post the same day in a registered cover* to the Station with which the interruption exists, *viz.* Jullunder. When communication is restored, Umballa will ask Jullunder if the copies of original Messages sent by post have reached; if not, Umballa will at once signal them to Jullunder.

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* Circular No. 68 of the 24th November prohibited the use of the word VIA, and substituted THROUGH. Of this latter word the first four letters need alone be given when signalling.

Jullunder will act, as respects Messages proceeding eastward, just as Umballa has been directed to act as regards Messages proceeding westward.

It is to be distinctly understood, and the rule must never be departed from, that there is but one route for Private Messages (other than Mail) viz. the direct one—that they must always be sent by that route either, in cases of interruption, by the post of the same day to the Telegraph Office beyond the interruption, or direct to destination should that be so near as to render this course obviously the most expeditious one. That Service, Telegraph Service of urgency, Public News and Mail Messages are those only which will be sent by the alternative line, and that when such are sent back to an alternative Station, all such are duplicates and not originals, these latter having been sent by post along the direct route. Duplicates will appear in the Message Drafts the same as any other Message.

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NOTE.—All Messages sent by Post will be numbered by the Despatching Office in the order of their receipt, as shewn in the table accompanying Circular No. 124 of the 3rd ultimo, and must be transmitted in the like order by the receiving Office. Such as arrive before the hour for closing the Mail, but too late to permit of their being addressed in a *registered* cover must be sent in an *unregistered* cover, to prevent the great delay that would result from their detention for registry by the following day's post.

NOTE.—This Circular cancels Telegrams Nos. 133 and 134, both of the 8th July last, and also the memorandum dated the 24th September 1861, and these, together with the original Circular, should be removed from the Circular Book to make place for this.

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## GOVERNMENT TELEGRAPH DEPARTMENT.

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### GENERAL BRANCH, CIRCULAR No. 105.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 30th April 1861.

THE practice of refunding the entire value of a Message in which certain words have been omitted, or in which an error has occurred in transmission, and regarding which Complaint has been made, will, for the future, cease, except in cases where the error or omission is of such a nature as to render the whole Message useless.

The amount of refunds for omissions or errors will therefore henceforth be restricted to the value of that portion which has been omitted, or so perverted as to be valueless.

The above change is made in justice to the Signallers who have to bear the burden of these refunds, which will now be considerably reduced.

This arrangement will not affect refunds for delay or non-delivery, which will continue to be given as usual for the entire value of the Message.

## COMPLAINT AND MESSAGE EXAMINER'S BRANCH, CIRCULAR No. 106.

From Major C. DOUGLAS, Officiating Director General of Telegraphs in India, to the Assistant in Charge ———— Office,—Dated Calcutta, the 4th May 1861.

PREVIOUS to despatch of Message Drafts to the Complaint Office, it must be mentioned on the face of all received Messages whether they have been delivered to the addressee or not, and in the latter case the reason for non-delivery must be stated. The capital letters D or N standing for "delivered" or "not delivered" written in *large* characters across the face, in ink, will suffice. The Complaint Office will bring to the notice of the Director General all neglect of the above order that comes to its notice.

As no time was laid down in Circular No. 52 of the 30th September 1860, defining the time when Message Drafts should be despatched to the Complaint Office, it is now directed that all such shall be retained in Offices for two clear days to admit of replies being given to local enquiries; for instance, the Message drafts of the 1st of the month will be despatched to the Complaint Office on the 4th, those of the 2nd will be despatched on the 5th, and so on throughout the month.

# APPENDIX O.

*Statement shewing the Receipts and Disbursements on account construction of the Telegraph Department for the year 1860-61.*

## RECEIPTS.

| CIRCLES. | Fines. | Sale of unserviceable stores. | TOTAL. |
|---|---|---|---|
| | Rs. As. P. | Rs. As. P. | Rs. As. P. |
| Dacca Circle ... ... | 107 11 6 | 6 12 0 | 114 7 0 |
| Sind „ ... ... | ... | 354 13 8 | 354 13 8 |
| Central India „ ... ... | 58 8 0 | 226 12 9 | 285 4 9 |
| | 166 3 6 | 588 6 5 | 754 9 5 |
| | | Total Rupees ... | 754 9 5 |

## DISBURSEMENTS.

| CIRCLES. | Lines reported by Sir William O'Shaughnessy in his last Annual Report as constructed. | Lines commenced in 1859-60, as reported by Sir William O'Shaughnessy and completed in 1860-61. | Lines commenced in 1860-61, but not completed. | Houses built, purchased or paid for in 1860-61. | TOTAL. |
|---|---|---|---|---|---|
| | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. | Rs. As. P. |
| Bengal Circle ... ... | 17,586 11 4 | 9,209 11 6 | ... | ... | 26,897 6 10 |
| Punjab „ ... ... | ... | 9,216 9 1 | ... | 3,617 8 9 | 12,833 8 10 |
| Dacca „ ... ... | 28,769 7 8 | 47,257 4 8 | 4,600 0 0 | 4,711 14 4 | 84,328 10 8 |
| Pegu „ ... ... | 56,893 11 5 | 1,615 7 8 | 10,958 4 2 | 1,602 12 0 | 70,137 3 1 |
| Bombay „ ... ... | ... | ... | ... | ... | ... |
| Sind „ ... ... | ... | 25,525 0 0 | ... | 6,501 0 7 | 32,026 0 7 |
| Indore „ ... ... | ... | ... | ... | 1,189 14 9 | 1,189 14 9 |
| Madras „ ... ... | 78,113 0 0 | ... | ... | 2,500 0 0 | 80,613 0 0 |
| Central India „ ... ... | ... | ... | ... | ... | ... |
| East Coast „ ... ... | 6,856 0 3 | ... | ... | ... | 6,856 0 3 |
| South-East Coast „ ... ... | ... | 19,175 2 7 | ... | ... | 19,175 2 7 |
| | 1,87,092 14 6 | 1,12,189 15 6 | 14,558 4 2 | 20,084 2 5 | 3,33,965 15 7 |
| | | | | Total Rupees ... | 3,33,965 15 7 |

ERRORS EXCEPTED.

*N. B.*—Among other charges paid during the year 1860-61, the above sum of Rupees 3,33,965-15-7 includes charges of previous years as the following :—

MADRAS CIRCLE.

| | Rs. As. P. |
|---|---|
| West Coast Line (between Mercara and Cochin) ... ... ... ... ... | 33,900 0 0 |
| Tanjore Line (between Cuddalore and the Tanjore District) ... ... ... ... | 34,415 0 0 |
| Total ... | 68,315 0 0 |

# APPENDIX P.

*Statement shewing the Receipts and Disbursements on account working of the Telegraph Department for the year 1860-61.*

## Receipts.

| Circles. | Service Messages. | Private Messages. | Fines, forfeiture of pay, &c. | Proceeds of Pol. Tables, Maps and unserviceable stores. | Total. |
|---|---|---|---|---|---|
| | Rs. A. P. | Rs. A. P. | Rs. A. P. | Rs. A. P. | Rs. A. P. |
| Bengal ... ... ... | 46,486 4 2 | 1,46,032 8 2 | 4,781 10 4 | 1,020 12 6 | 1,97,340 5 3 |
| Punjab ... ... ... | 28,955 1 4 | 31,037 15 11 | 636 13 3 | 251 9 6 | 56,301 8 0 |
| Dacca ... ... ... | 2,113 10 0 | 3,972 2 9 | ... | ... | 6,085 15 9 |
| Pegu ... ... ... | 4,724 0 3 | 10,643 10 4 | 27 5 0 | 10 0 0 | 15,404 15 7 |
| Bombay ... ... ... | 16,730 12 9 | 1,48,809 4 4 | 477 12 3 | 642 4 0 | 1,66,674 1 4 |
| Sind ... ... ... | 5,869 15 0 | 12,861 9 0 | 655 6 16 | 215 12 5 | 19,602 10 10 |
| Indore ... ... ... | 3,807 12 0 | 24,204 9 0 | 857 15 11 | 797 5 6 | 29,647 10 5 |
| Madras ... ... ... | 15,430 15 2 | 68,673 12 3 | 702 2 1 | ... | 85,807 13 6 |
| Central India ... ... | 3,648 12 8 | 15,141 12 6 | 367 11 1 | ... | 19,158 8 7 |
| East Coast ... ... | 2,725 2 3 | 27,827 4 8 | 253 4 1 | 513 5 0 | 31,319 0 5 |
| South-East Coast ... ... | 561 3 8 | 13,444 7 10 | 29 0 9 | 179 8 0 | 14,205 4 3 |
| | 1,20,243 12 0 | 5,04,278 0 10 | 8,155 1 7 | 3,140 8 6 | 6,35,817 6 11 |
| | | | | Total Rupees ... | 6,35,817 6 11 |

## Disbursements.

| Offices of Director General, Directors, and Circles. | Salaries of Director General and Superintendents of Divisions, Deputy Superintendents of Circles, and their Offices, Signal Offices, and Line Establishments. | Contingencies and house rents of all Offices. | Repairs of Lines. | Total. |
|---|---|---|---|---|
| | Rs. A. P. | Rs. A. P. | Rs. A. P. | Rs. A. P. |
| Director General's Office ... | 24,955 15 6 | 1,060 14 7 | ... | 25,016 14 1 |
| Bengal Circle (including Office of Superintendent Eastern Division). | 1,97,817 9 5 | 33,329 7 5 | 29,748 7 4 | 2,61,905 8 0 |
| Punjab Circle ... | 36,213 11 1 | 24,200 2 1 | 28,154 8 5 | 1,42,568 5 7 |
| Dacca ditto ... ... | 31,092 4 10 | 7,933 15 4 | 699 12 9 | 39,975 0 11 |
| Pegu ditto ... ... | 46,120 11 9 | 21,363 15 3 | 4,901 10 1 | 72,546 5 1 |
| Bombay ditto (including Office of Superintendent Western Division) | 1,13,869 2 4 | 47,579 8 0 | 14,861 6 10 | 1,76,190 1 4 |
| Sind ditto ... ... | 65,815 0 6 | 9,450 0 0 | 650 0 0 | 75,915 0 6 |
| Indore ditto ... ... | 52,290 15 6 | 12,755 9 4 | 16,810 12 7 | 81,857 5 5 |
| Madras ditto (including Office of Superintendent Southern Division) | 1,06,569 0 9 | 1,40,847 8 0 | 29,522 0 0 | 2,87,548 0 0 |
| Central India Circle ... | 68,141 10 11 | 22,746 13 5 | 7,930 0 0 | 98,818 14 4 |
| East Coast ... ... | 76,703 0 0 | 16,546 6 3 | 71,265 9 8 | 1,64,514 15 11 |
| South-East Coast ... ... | 14,729 8 8 | 8,092 0 7 | 682 11 4 | 23,504 4 7 |
| | 8,81,305 13 0 | 3,45,745 12 3 | 1,37,146 5 0 | 13,84,197 11 3 |
| | | | Total Rupees ... | 13,84,197 11 3 |

ERRORS EXCEPTED.

*N. B.*—No credit has been taken for Messages sent or received by the Marine Department during the above year, aggregating Rupees 2,631-14-3, or by the Superintendent of Salt Chowkies amounting to Rupees 287-4-0.

The above sum of Rupees 1,20,243-12-6 does not include the amount of Telegraph Service Messages charged per contra under the head "Contingencies."

*N. B.*—Among other charges paid during the year 1860-61, the above sum of Rupees 13,84,197 11 3 includes charges of previous years as the following:—

Press Circles.

Telegraph Office at Peons built in 1855 and paid during the year ... ... Rupees 1,402 12 0

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